ES5 Electric Scooter Owner's Manual

The user should read the users manual carefully before using the product. The user shall have a proper command of basic operation functions, usage methods and other common sense for the model. The data, technical specifications and performance parameters labeled in the manual are compiled based on the latest status. CSC Motorcycles reserves the right to amend the manual at any time without a separate notice and does not assume any liabilities. Please understand this. No entities or individuals shall be allowed to reproduce any part of the manual without the CSC Motorcycles's written approval. We sincerely wish that you can tell us your opinions on the design, manufacture or quality of the product. If you have any positive recommendations and opinions, please inform us by letter for timely improvement.

This manual is only about operating your ES5 electric scooter. There is no description of repairs in this manual.

Please do not throw away the used battery in the trash, as it can harm the environment. The used battery of this product should be recycled at an authorized collection site.

The contents and images of this manual are for reference only. Specifications are subject to the physical product. Please purchase the original genuine parts and accessories from CSC Motorcycles.

CSC Motorcycles

Address: 1331 W Foothill Blvd, Azusa, CA, United States

Service hotline: 1-800-884-4173

For more information, please visit our website http://cscmotorcycles.com.

Please read this manual carefully before using the motorcycle!

⚠ Danger

1. Follow traffic regulations and drive safely.

2. Users who don't have motor vehicle driving license are prohibited to drive on public roads.

3. In order to ensure driving safety, it is forbidden to drive after drinking or taking medicine.

4. Do not use this motorcycle model for racing competitions. You are responsible for any mechanical accidents and personal injuries that may happen.

5. People with mental health conditions, history of mental health conditions, heart disease, deafness, or disability should consult their doctor before driving and follow any medical advice.

⚠ Warning

1. Please wear the helmet, goggles, gloves and other protective gear when driving.

2. Do not hang anything on the steering handle, as it will affect your driving safety.

3. Please use the original charger provided with your scooter to charge the battery, or the battery will be damaged.

4. Do not wear loose clothing, flip-flops or other items that may get caught on the operating handle and accessories, as they can cause a safety hazard.

5. Before unplugging the power plug, please turn off the circuit breaker and the switch lock first.

⚠ Caution

1. After unpacking, please check the included accessories and documents according to the packing list.

2. This model can only carry the driver. The maximum weight of electric vehicles is 330 lbs, and the maximum weight of the trunk is 6.5 lbs.

3. Do not modify any part of the electric vehicle, as it will affect the reliability, stability and comfort of the electric vehicle.

4. Please make sure the battery is fully charged at once, or the battery will be damaged. Do not turn the battery upside down while charging. Do not wash the electric vehicle with high-pressure water to avoid possible accidents caused by water getting into the internal electronic components and circuits.

⚠ Suggestion

1. This operation manual is an important part of your new electric scooter. When you give or sell the electric scooter to someone else, you should include the manual with it.

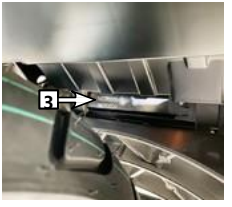
2. When you are not using the electric scooter, you should turn off the circuit breaker and charge it once a month to prevent the battery from losing power and getting weaker over time.

3. During the break-in period or warranty period, you should regularly visit the dealer or the company's maintenance service station for routine maintenance and adjustment.

Contents

Vehicle Identification Number (VIN) and Motor Number

Vehicle identification number (VIN), engine number and vehicle certificate are used for registering your motorcycle with your local DMV.



1. The vehicle identification number (VIN) is printed on the frame riser. 2. The vehicle nameplate is riveted to the frame below the seat cushion 3. The motor number is engraved above the motor housing

Please fill in the corresponding number for future inquiry:

Frame VIN Code		Motor Number	

Overall Vehicle Diagram and Component Names

1. Taillight 2. Rear armrest 3. Seat cushion 4. Front foot rest battery cover
5. Handle switch 6. Headlight 7. Rear brake 8. Rear shock absorber 9. Rear pedal
10. Front shock absorber 11. Front wheel

Overall Vehicle Diagram and Component Names

1. Headlight 2. Instrument 3. Seat cushion 4. Rear armrest 5. Taillight
6. Front wheel 7. Front shock absorber 8. Front brake 9. Side bracket
10. Centerstand 11. Drive belt 12. Rear wheel

Full Vehicle Lock, USB, Control Handle

NO.	Name	Function description
1	Power lock	Insert the key and rotate it to position 1, the circuit is connected and can be started; Turn the key to position 2, the circuit is disconnected and cannot be started; Rotate to position 3 to open the seat cushion lock; Turn to position 4 and lock the steering handle. The electric vehicle cannot be used and the key can be taken away.
2	USB port	Access to the mobile phone charging line can be used for mobile phone charging.
3	Speed control handle	Turn the speed control handle to control the running speed of the electric vehicle.
4	Right brake handle	Control the running speed of the front wheel, and its free stroke is: 10 mm ~20 mm. 20mm。
5	Left brake handle	Control the running speed of the front wheel and rear wheel, and its free stroke is: 10 mm ~20 mm. 20mm。

Warning

1. You should park the electric vehicle in a safe place and lock the steering column to prevent the electric vehicle from being stolen.

2. For your personal safety, please unlock the steering column and remove the key before starting the electric vehicle, so you can avoid tipping over.

3. To ensure driving safety, do not turn the speed control lever too much when starting to avoid tipping over.

4. Braking affects your personal and property safety and you should regularly and properly adjust and maintain it to drive safely.

Charging Interface

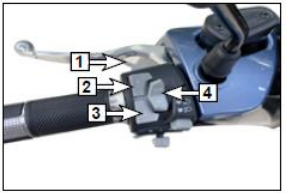
NO.	Name	Function description
1	Portable charging interface	Open the seat cushion and connect the charger to charge the battery.

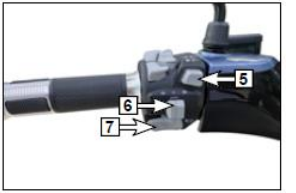
Instrument Indication (TFT Instrument)

NO.	Name	Function description
1	Steering indicator	When using the left turn signal lamp, the left turn indicator " ⇦ " flashes
2	Gear display	Displays the gear in which the vehicle is currently in forward, and R is reverse gear
3	High beam indicator	When using the high beam, the high beam indicator "≣D" is on.
4	Burst mode light	This indicator comes on when the vehicle is in burst mode.
5	Charging indicator	When the battery is charging in the power-on state, the indicator lights up
6	Malfunction indicator lamp	When the vehicle has a fault, the malfunction indicator will be on, and the total mileage area will report the fault code.
7	Trip mileage	This trip mileage can be reset
8	Total mileage/fault code display	Display the total mileage traveled by the current vehicle or display fault codes
9	Ready indicator (READY)	Lights up when the vehicle is in a drivable condition and can be driven with the throttle switch.
10	ABS indicator lamp	Reserved for optional ABS light
11	Cruise control indicator	When the vehicle is in cruise control mode, the indicator light is on
12	Right turn indicator	When using the right turn signal, the right turn indicator "⇨" flashes
13	Battery identification	Display the current number of batteries and remaining power
14	Power percentage	Current power as a percentage of total power
15	Vehicle speed value	Displays the running speed of the current vehicle
16	Malfunction indicator lamp	When the vehicle has a fault, the malfunction indicator will be on, and the total mileage area will report the fault code.

Left Combination Switch

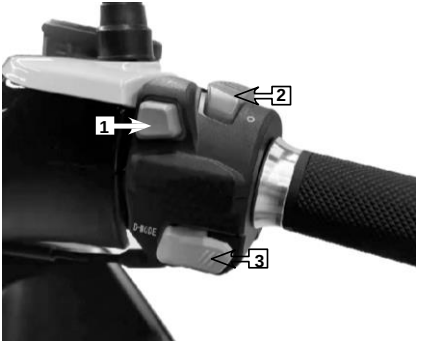
NO.	Name	Function description
1	Burst mode key	Long press this key to enter burst mode, which can last up to 6 minutes (depending on the operating conditions and usage environment). The maximum speed can reach 52 mph. Release to exit this mode.
2	Reverse key	When the electric vehicle needs to reverse, press this button and turn the speed control knob.
3	Constant speed cruise button	Pressing this button during driving at a speed not exceeding 37 mph allows the vehicle to maintain a constant speed without operating the speed control knob; Release the cruise state when using the brake or re-rotating the speed control knob.
4	Instrument setting key	Long press the MODE key to switch between metric/Imperial, tap to select function; SET key tap to increase instrument brightness. When the subtotal mileage flashes, long press to reset the subtotal mileage.
5	Dimming switch	When the lighting switch button is pressed to the position " " , the high beam lamp is turned on. When the lighting switch button is pressed to the position" ", the low beam lamp is turned on.
6	Turn signal switch	When changing the driving direction, pull out the left and right turn signals to turn on and off, and the left turn signal or the right turn signal will flash.
7	Horn button	Press and hold this button when the electric vehicle needs to sound.





Right Combination Switch

NO.	Name	Function description
1	P-gear key	When the vehicle is parked, the indicator light on the instrument is on; When the user presses this key, the indicator light will be off and the vehicle can be started.
2	Emergency Switch	Press this button and the left and right turn signals will flash at the same time.
3	Shift switch	When the motorcycle is driving, the user can click the switch to cycle through 1.2.3 gears, and the instrument panel displays the corresponding gear.

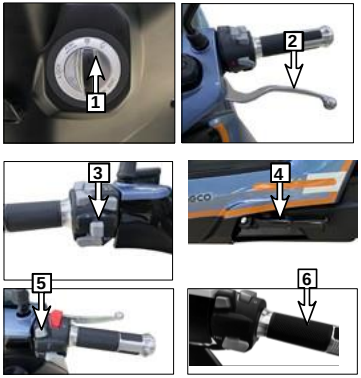


Inspection Before Driving

Before driving, check in accordance with the following requirements to ensure users' safe driving and successful driving.

NO.	Items	Check	Remark
1	Battery	Check if the battery has enough power.	According to the mileage and working conditions, regularly carry out three-level maintenance on the electric vehicle: Level Ⅰ maintenance: From 600 miles ~ 1,800 miles, taking inspection and fastening as the main contents. Level Ⅱ maintenance: From 1,800 miles~ 3,700 miles, the main contents are inspection, adjustment, and fastening. Level Ⅲ maintenance: 3,700 miles ~ 6,000 miles, with overall analysis, inspection and adjustment, lubrication and fastening, replacement of worn parts and elimination of hidden dangers as the main tasks. Regular three-level maintenance is recommended to the company's special maintenance service station for installation, commissioning and maintenance.
2	Drive device	Check whether the controller and drive motor are working properly.	
3	Brake oil	Check whether the lubricating oil is deteriorated and whether the capacity is lower than the lower scale line.	
4	Brake handle	Check whether the free stroke is within the specified value	
5	Shock absorber	Check whether the shock absorber works properly.	
6	Speed control handle	Check the flexibility of the speed control handle.	
7	Steering mechanism	Check the flexibility and stability of steering mechanism	
8	Tire/wheel	Check tire pressure and wear	
9	Lighting/signal indicator	Check whether the lighting lamp/signal lamp/indicator lamp is working.	
10	Brake	Check the wear of brake shoes and whether the braking performance is good.	
11	Main bracket/side bracket	Check the main bracket/side bracket for bending deformation and good return	
12	All-vehicle fastener	Check whether the fasteners of the finished vehicle are loose or fall off.	

Starting and Driving Operation of Electric Vehicle



1. Insert the key into the power lock and turn it to the "" position to turn on the electric vehicle power.

2. Hold the brake handle to prevent the electric vehicle from sliding.

3. When the electric vehicle needs to steer, please turn on the steering indicator to alert pedestrians and vehicles.

4.Withdraw the side bracket to release the protection state of the controller.

5. Press the P gear button to release the P gear protection status.

6. Release the brake handle, turn the right speed control handle slightly with your right hand to move the electric vehicle slowly, and then put your feet on the pedals.

Caution

1. When the vehicle is in a parking state after the side bracket is lowered, the controller is in a power-off protection state, and the whole vehicle cannot ride, so as to prevent the danger that personnel accidentally transfer the handlebars and the vehicle rushes out.

2. Some models have a 2-second self-test process, and the vehicle is ready when the indicator light on the meter is green.

3. Please wear protective equipment (e.g. helmet, protective gloves, protective glasses, protective clothing, etc.) before driving.

4. Please use the slow speed setting when starting the electric scooter, and do not make the electric scooter go fast in the fast speed setting when starting.

Inspection and Adjustment after the Wear-in Period

After buying a new motorcycle, users should pay attention to the break-in of the new motorcycle (the break-in period is 500 miles at the beginning, and the odometer reading is the final measure). The break-in quality of new motorcycles directly affects the lifespan of electric motorcycles. The break-in period is the process in which the newly purchased electric vehicle becomes more compatible, consistent and smooth after running for a while. After the break-in period is over, the electric vehicle should be adjusted thoroughly to ensure the normal operation of the whole vehicle in the future and to make the electric vehicle run faster and longer. The main adjustment items are as follows:

1. Bearing adjustment

After the break-in period, the raceway surface between the steel ball, the shaft bowl and the shaft stop will be smoother and more consistent under the operation of the stressed load, but the gap should be properly adjusted.

2. Adjustment of brake system

After a period of use, the coordination of various parts of the brake system is more perfect, especially the brake shoe and the inner diameter surface of the brake drum are more consistent after running-in. To drive safely, the slack of the brake system should be adjusted appropriately.

3. Fastener adjustment

After the break-in period, the bolt or nut may loosen after the vehicle is shaken and jolted, so it must be checked and tightened in time to ensure the smooth running of the electric vehicle.

Periodic Maintenance Schedule

Maintenance times / Maintenance items	Odometer km				
	300 Miles	1500 Miles	3500 miles	7000miles	Remark
※Controller		Check	Check	Check	1■※ This item can only be maintained by our after-sales personnel. 2. When driving in abnormally wet or dusty areas, the periodic maintenance cycle shall be appropriately shortened.
Air switch		Check	Check	Check	
Control cable	Clean	Clean	Clean	Clean	
Brake handle	Adjust	Adjust	Adjust	Adjust	
※Battery	The user charges in accordance with the mileage				
※Brake shoe	Check	Check	Check	Replace	
Brake	Adjust	Check	Adjust	Adjust	
Indicator bulb	Check	Check	Check	Check	
Lighting bulb	Check	Check	Check	Check	
※Shock absorber	Check	Check/lubricate	Inspect/add grease	Inspect/add grease	
Fastener	Fasten	Fasten	Fasten	Fasten	
Front and rear inner and outer tires	Check	Check	Check	Replace	
Steering mechanism bearing	Check	Check	Check	Check	
Brake cable	Check/lubricate	Add grease	Replace grease	Check/lubricate	
Front and rear wheel bearings	Check/lubricate	Check/lubricate	Check/lubricate	Check/lubricate	
Motor	Check/lubricate	Check/lubricate	Check/lubricate	Check/lubricate	

Maintenance Requirements

When you drive an electric vehicle, some parts may get loose or worn out over time. That' s why you need to do regular maintenance on your vehicle, so you can make it last longer, save money on repairs, and drive safely.

1. Keep your vehicle looking good, fully charged, easy to start, fast and powerful, and quiet.

2. Make sure the steering and transmission are smooth, everything is tight and secure, and the oil is fresh and full.

3. Check that the front and rear brakes work well, the brake pads snap back when you let go, there is no squeaking sound, and the electric vehicle glides smoothly.

4. See that the front and rear shocks are stable and reliable, the tires are inflated properly, and all the electrical and mechanical parts are working fine.

5. Ensure that the battery is connected firmly, fixed in place, has all the parts, and has no damage or rust.

Use and Maintenance of Charger

Chargers are a key part of electric vehicles, and the quality of chargers affects how long the batteries last. The charger mainly consists of a rectifier filter, a high voltage switch, a voltage converter, a constant voltage regulator, and a charging controller.

This charger has a trickle function, which means it slowly charges the battery to avoid overcharging. Make sure you don't charge the battery for more than 12 hours at a time, or it will shorten the life of the charger. The charger should be in a dry and airy place when charging; Stay away from anything that can catch fire when charging the battery; Don't cover the charger with anything and allow air to flow freely while charging to prevent fire.

When charging, first plug the charger's output plug into the socket on the battery box, and then plug the charger into a regular power outlet. After charging, turn off the charger first, and then unplug the output plug from the battery box socket. Store the charger safely or put it in the glove compartment with the vehicle.

Warning

1. Chargers must be kept away from water and moisture. Use or store them in a dry place and don't drop them to avoid electric shocks.

2. Don't touch or turn on the charger while it's charging, because it has high voltage electricity that can shock you.

3. If the charger gets hot while charging, put it in a well-ventilated place, and don't charge it near anything that can burn or explode like carpets or wood floors to prevent fire or explosion.

4. When charging, make sure the battery's voltage and current match the charger's specifications, and the charger's output plug has the same polarity as the battery pack, otherwise you'll damage the charger and battery.

5. If the charger's indicator light doesn't change color for a long time (more than 8 hours), and it stays red, stop the charger right away and contact CSC Motorcycles service department for a check-up.

6. If the charger breaks, let a professional fix it.

Use and Maintenance of Battery

The battery of this model is installed under the floor board. The battery has large capacity, small self-discharge, high energy, long service life, safety and reliability, and is an ideal power battery. Please read the instructions carefully before using the battery.

1. The lithium battery of the new motorcycle is delivered at 40 ~ 60% of the charge. If the delivery time is short, the user can directly load it for use. If the delivery time is longer (more than 2 months), users should replenish the battery before use. After 7 to 8 hours of charging, the green indicator of the charger is on, indicating that the battery is fully charged and charging can be completed.

2. The battery of the vehicle adopts the fully enclosed energy-saving design with advanced technology, so that the battery is free from maintenance, safe and environmentally friendly, the service life is significantly longer than that of the traditional battery, and the continuous mileage is greatly increased.

3. The battery shall not be placed in a closed container, shall not be close to the open fire, shall not be thrown into the fire or immersed in water, and shall not be directly exposed to the sun.

4. If the battery shell is found broken or leaking, replace the battery.

5. When the vehicle is not riding, check the battery power regularly every week and charge it in time to avoid battery power loss and shorten battery life.

Caution

1. The storage battery shall be stored in a dry, cool and shaded place, and keep upright to avoid heavy objects from squeezing.

2. When charging, the ambient temperature shall be kept between 32°F∽95°F and well-ventilated. A lower temperature will affect the charging efficiency. A higher temperature is easy to change the charger parameters, even cause thermal runaway and charge the battery.

3. Please do not discard the waste battery carelessly, so as not to pollute the environment; The waste battery of this product shall be recovered by the enterprise or the dealer or the designated network of the government.

Installation and Removal Procedures of Lithium Battery

Removal of the battery:

1. Turn off the switch lock
2. Open the seat cushion
3. Pull the battery lock cable
4. Open the battery cover plate
5. Pull out the battery charging and discharging plug and lift out the first battery.
6. Pull out the first battery slide, unplug the battery charging and discharging plug, and lift out the second battery.

The procedure for installing the battery is the reverse of the removal procedure.

Caution

When removing or installing the battery, the door locks should be closed and the air switch should be disconnected to avoid danger.

Maintenance of Drive Motor

The vehicle adopts a DC, brushless rear-wheel drive motor with an efficiency of more than 85%, which has the advantages of strong hill-climbing performance, fast speed, low running current, long mileage, and good skidding effect, etc.

1. Water intake of the drive motor will cause insulation degradation. After the motor is disassembled and drained, it can be dried by blower or sun drying. Then the motor resistance and Hall sensor shall be tested and replaced if damaged.

2. Inadequate battery charging will result in short continuous driving range of electric vehicles and weak driving motor, so the battery should be kept fully charged.

Caution There is no direct interchange between low-speed brushless motor and high-speed brushless motor.

Inspection of wheels

1. If the tire pressure is too high, the riding comfort will be reduced and the wear of various parts will be accelerated. If the tire pressure is too low, the rolling resistance of the tire will be increased and the consumption will be increased. In serious cases, local delamination of the tire will result in tire burst.

2. When the tire valve core leaks, it should be repaired or replaced. When the inner tube leaks, repair or replace the tire.

3. Regularly check and adjust the wheels at our special service center.

Outer tire wear limit value

Outer tire wear limit value	Front wheel	2.0mm
	Rear wheel	3.0mm

Yaw limit value of wheel

Yaw limit value of wheel	Axial direction	Spoked wheel 2.0mm	Aluminum wheel 0.8mm
	Radial direction	Spoked wheel 2.0mm	Aluminum wheel 0.8mm

Inspection and adjustment of brake

Inspection of hydraulic brake

1. When the free stroke of the brake handle is within the standard value range. When the travel of brake handle is not adjusted in a normal way, it means that the wear of brake shoe has exceeded the maintenance limit, and it is necessary to replace the brake shoe.

2. Check the oil level of the oil storage cylinder from the observation hole. When the oil level of the oil storage cylinder is lower than the lower limit position, the brake oil shall be replenished to the upper limit position. Recommended brake oil: DOT4

Standard value of free travel of brake handle: 10 mm ~ 20 mm

Caution

1. After readjusting the brake, hold the brake handle back and forth several times by hand, then release the brake handle, rotate the wheel, and check whether the wheel rotates freely. After adjusting the rear brake, the rear brake light switch must be readjusted.

2. When adjusting the brake and replacing the brake shoe, please be sure to visit our special maintenance service station to replace the original genuine parts.

3. Regularly check and adjust the special maintenance service of our company.

Cleaning and Storage

1. Cleaning of electric vehicles

(1) It is forbidden to wash the electric motorcycle with high-pressure water to avoid potential accidents caused by wetting of internal electronic components and circuits.

(2) After cleaning, dry the surface of the electric motorcycle with a clean cotton cloth or clean towel.

(3) Apply wax on the surface of paint baking parts and antirust oil on the chrome-plated surface.

2. Storage of electric vehicles

(1). For long-term parking (over 60 days), it should be thoroughly cleaned before storage.

(2). Batteries will lose power over time, even when they are not in use. Storing batteries with low power for a long time can damage them. It is best to charge your batteries every 3 to 4 weeks. Keep the batteries in a dry and dark place indoors. Do not store the batteries in a hot or humid place.

(3) Remove the control cable for cleaning and lubrication. After filling the tire pressure to the specified value, use wood blocks to raise the tire so that the tire does not contact the ground.

(4). After storage, it should be stored in a ventilated, dry, clean, rain-proof and sun-proof environment, away from flammable, chemical corrosive and other harmful substances.

(5). When in use after storage, it shall be thoroughly cleaned and checked once, the power lock of the electric vehicle shall be opened, the working condition of the whole vehicle circuit shall be checked, and the battery shall be charged slowly once.

Common Fault Diagnosis and Troubleshooting Methods

I. Fault: motor does not turn. Fault causes and solutions:

1. Fault cause: the power fuse of the finished vehicle is blown or the circuit breaker is tripped, causing the power supply circuit to be blocked;

   Solution: a. Replace safety tube; b. Reopen the air switch.

2. Fault cause: battery voltage is too low, resulting in the controller under voltage protection state;

   Solution: charge battery.

3. Fault cause: the battery voltage is too high, which causes the controller to be in overvoltage protection state;

   Solutions: a. check the reason of high battery voltage and troubleshooting; b. replace the battery

4. Fault cause: Speed control handle failure;

   Solution: Replace the speed control handle.

5. Fault cause: brake failure causes the controller to be in brake protection state;

   Solution: check whether the brake switch and brake light are short-circuited. If they are short-circuited, please replace the corresponding parts.

6. Fault cause: anti-theft fault, when the whole vehicle is in anti-theft state, the whole vehicle circuit is connected at this time, and the motor will not rotate because the controller locks the motor against theft;

   Solution: unlock the anti-theft status with the anti-theft remote control panel.

7. Fault cause: The side bracket was not retracted or the side bracket switch was short-circuited, causing the side bracket to be in a protected state;

   Solution: a. fold up the side bracket; b. or replace the side bracket switch.

8. Fault cause: Short circuit or open circuit in the motor phase line, resulting in controller protection;

   Solution: Repair or replace the motor assembly.

II. Fault: The motor can operate normally, but the speed is too slow.

1. Fault cause: low battery voltage;

   Solution: Measure the battery voltage with a multimeter. If the voltage is too low, recharge the battery immediately.

2. Fault cause: In low-speed gear;

Solution: Shift to high gear.

3. Fault cause: The handle is malfunctioning, and the signal output voltage is too low;

Solution: Check and maintain the speed regulating handle.

III. Fault: The motor can rotate by twisting the speed knob, but it stops again after a few seconds and there are repeated failures.

Fault cause: this fault is mostly caused by low battery voltage of electric vehicles. The battery has a floating phenomenon, that is, the battery voltage is relatively high when no load is applied, and the battery voltage drops sharply after the load is applied, which will be lower than the under-voltage protection value, causing the controller to under-voltage protection and stop the motor drive output.

Solution: Measure the battery voltage with a multimeter. If the voltage is too low, recharge the battery immediately.

IV. Fault: The noise and current of ordinary speed riding motor are relatively large.

1. Fault cause: The MOS tube of the controller is damaged;

Solution: Replace the controller.

2. Fault cause: The motor is damaged; Such as turn-to-turn short circuit of the motor winding, large interference of Hall signal output, etc.

Solution: This kind of fault is difficult to be measured, detected and processed by multimeter, so replacement method can be used to replace the new motor to see if the problem still exists, and if the problem is solved, the motor is faulty. 3. Fault cause: The mismatch between the controller and the motor Hall will also cause the motor noise; Solution: Replace the controller.

V. Fault: In non-loaded condition, screw the governor handle at the place with excessive load or large slope to start the electric vehicle. Sometimes, the motor will have forward force, but the electric vehicle still does not move forward. After a few seconds, the force disappears. After the handle is reset, turn the handle again, and the phenomenon will repeatedly appear.

Fault cause: This phenomenon is often called "locked-rotor" in electric vehicles. When starting, the load is very large, but the motor does not rotate, so the controller will not produce commutation action. Large current will pass through the same set of MOS tubes on the upper and lower bridges of the controller and the same winding of the motor, which will easily burn down the controller and the motor for a long time. In order to protect the controller and the motor, the motor drive output must be stopped in a safe time period, which is the "locked-rotor protection" of the controller.

Solution: In case of the above situation, it is necessary to reduce the load of the electric vehicle or wait for the electric vehicle to restart at a place with a small slope.

Tips: do not let low-power electric vehicles run for a long time under heavy load (heavy load or climbing a steep slope), so as not to affect the service life of the motor or controller.

VI. Fault: When the electric vehicle starts, sometimes it needs help.

1. Fault cause: Controller fault;

Solution: Replace the controller.

2. Fault cause: Poor contact motor phase line; Solution: reconnect the motor phase line.

VII. Fault: In the process of riding, the vehicle will walk for a moment and stop for a moment

1. Fault cause: Poor contact of power cord, handle cable, motor phase cable and Hall cable;

Solution: Check the connection of each node to ensure that the contact parts are firmly contacted without poor contact.

2. Fault cause: Low battery voltage;

Solution: Check the battery voltage and replenish it in time.

VIII. Fault: When the speed control handle is not reset during the whole vehicle riding, the brake can not protect against power failure.

1. Fault cause: The brake switch is damaged;

Solution: Test and replace the brake switch (or brake handle).

2. Fault cause: The brake switch line is not connected or disconnected; Solution: Test the line and eliminate the corresponding faults. 3. Fault cause: The brake input circuit inside the controller is broken;

Solution: Replace the controller.

IX. Fault: After pinching the brake in vehicle riding, sometimes the speed regulation has no effect. Fault cause: Brake handle fails or is damaged after being used for a long time;

Solution: Replace the brake switch.

X. Fault: Short cruising range.

Failure cause analysis: The short endurance mileage is related to many factors, and the factors related to the vehicle manufacturer: the efficiency characteristics of the selected motor of the vehicle, the capacity and life characteristics of the battery;

Other factors relevant to objective circumstances: the weight of the rider, the road conditions of frequent riding, whether the brakes need to be used frequently, the riding habits of the rider, and so on.

1. Reason of the motor itself:

a.Low efficiency-the amount of electric energy converted into mechanical energy by motor is reduced, while the amount of loss used for heating is increased. This kind of motor does not run for a long time and generally has a high-temperature rise;

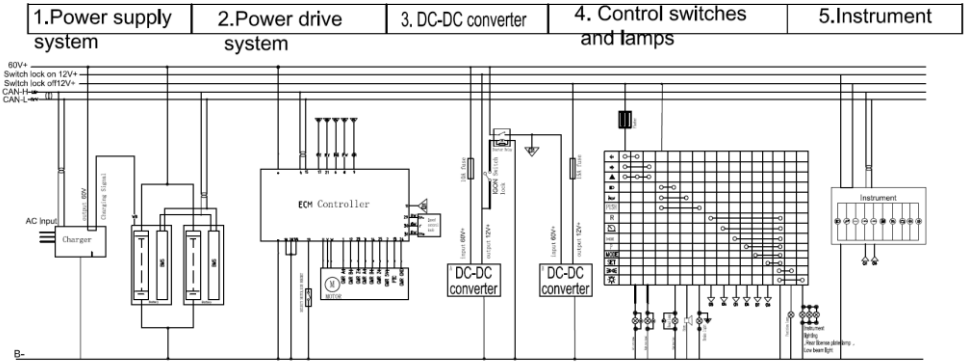
b.Magnetic steel demagnetization-with the increase of service time, is certain that magnetic steel demagnetization will occur, but it is only a matter of how much.However, if the quality of the magnetic steel itself is not good and the demagnetization performance is poor, the magnetic steel will be easy to demagnetize, resulting in a significant decline in motor performance, an increase in operating current and a shortening of driving mileage.

Main Specifications (Civilian Version)

Vehicle model	ES5 Electric Scooter
Motor type, specification	Mid-mounted motor, 5kW
Max. power	8.1 kW @ 3500 min-1
Max. torque	51 Nm @ 500 min-1
Battery specifications	Lithium battery, 60V31Ah * 3
Charging time	≤ 8h
Controller	CAN
Maximum speed	52 mph
Driving range (working condition method / isokinetic method)	120/75km
Energy consumption rate (working condition method / isokinetic method)	37/58Wh/km
Braking mode	Front brake Hand operated/disc; Rear brake Hand operated/disc
Wheel	Aluminum wheels; Front MT3.00 × 14, rear MT3.50 × 13
Tire size	110/80-14 M/C, rear 130/60-13 M/C
L x W x H	1900mm×725mm×1135mm
Wheelbase	1330mm
Minimum ground clearance	125mm
Curb Weight	291 lbs

Note: The continuous mileage refers to the distance from continuous riding on a flat road with a fully charged battery and rated load to the start of the controller undervoltage protection function. In the use of the vehicle, the continuous mileage will vary with the road conditions, the number of parking starts, the size of negative number, wind resistance temperature as well as other factors.

Electrical Schematic Diagram



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