MOTRON

SERVICE MANUAL

CUBERTINO

Contents

Chapter I Overview

Printing position of machine number	Maintenance interval table
Maintenance precautions	Wiring diagram
Main performance technical data	Symbol description
Standard torque value	

Printing position of machine number

Vehicle picture:

Printing position of frame number:	Location of nameplate:
	
The frame number is engraved on the right side of the	The frame name plate is riveted on the left side of the

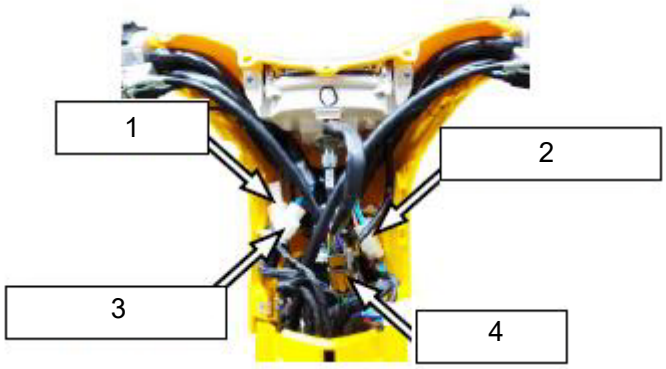
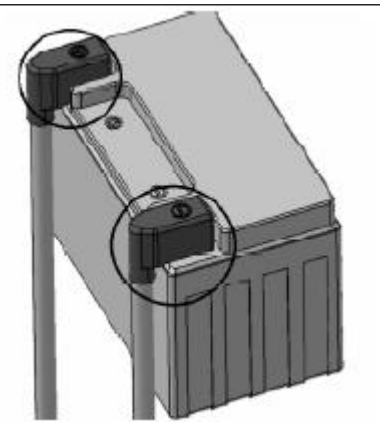
frame seat tube	frame seat tube

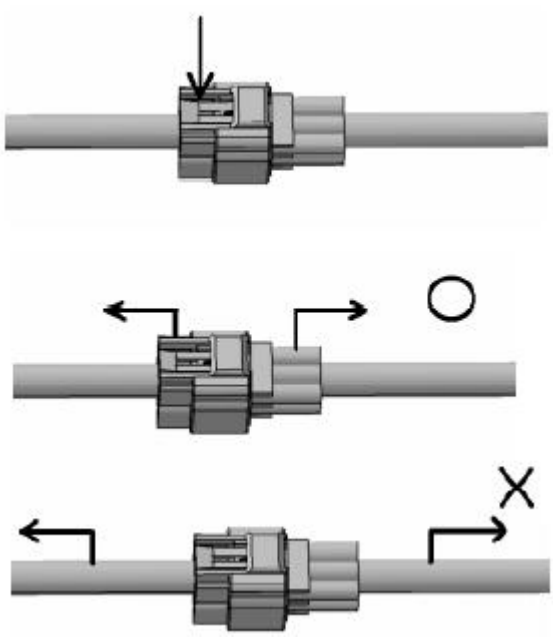
Printing position of motor number:

The motor number is engraved on the left side of the motor housing

Maintenance precautions

1. Parts, accessories, lubricating oil and other auxiliary materials produced by the company or approved and recommended by the company shall be used. If the parts used do not meet the specifications or requirements, the motorcycle may be damaged. 2. When reassembling after disassembly, new washers, seal components and cotter pins shall be replaced.	
3. When fastening bolts or nuts, they shall be carried out in diagonal cross sequence and tightened step by step in 2-3 times to reach the specified standard torque value.	
4. After the parts are disassembled, they shall be cleaned before inspection and measurement. When cleaning parts, non combustible or high ignition point cleaning fluid shall be used. Before assembly, the sliding surface of parts shall be applied with the specified lubricating oil. After assembly, check whether all parts are installed correctly, perform rotation, movement and operation checks.	

5. Special and general tools must be used in assembling and disassembling motorcycles. 6. The specified or equivalent grease (oil) must be applied or injected at the specified place. 7. When more than two people operate, they should pay attention to each other's safety and work together. 8. The circuit air switch must be disconnected before operation. After the operation, the connection, fixation and connection of each part shall be confirmed again.	
9. The connector shall be firmly inserted, and the harness color and connector shall be corresponding.	 1 - Speed regulating line 2 - Left switch assembly wiring 3 - Right switch assembly wiring 4 - Instrument line
10. The cover shall cover the terminal after the operation.	

11. When disassembling the connector with lock, the lock must be released before operation. When disassembling the connector, hold the connector body and do not pull the wire harness. Before connecting the connector, the terminal shall not be broken or bent, confirm that the terminal is not too long or falling off, and the connector should be fully inserted.	
12. The harness fixing belt shall be tightly fastened to the specified position of the frame. The clamp shall clamp the wire bundle correctly. The wire harness shall be clamped at the place not in contact with the part with high temperature. The wire harness shall be clamped at the place not in contact with the edge and acute corner of the vehicle body. The wire harness shall not pass through the place where it contacts with the head and front part of bolts and screws. The wiring harness should not be loosened or pulled by force. If the electric wire harness needs to contact with the edge and acute corner in any case, it should be protected with hose or tape at the contact part. Do not break the covering of the wiring harness. If the wiring harness is damaged, it should be repaired by winding with plastic tape. Do not press on the wire harness when installing parts. Do not twist the wiring harness.	13. When wiring, it should be noted that when the handle is turned left and right to the limit position, the wire bundle shall not be tight and loose, and it should be confirmed that there is no prominent bending, pressed phenomenon, edge interference and other phenomena. 14. When using the test table, you should understand the instructions in the operation manual and operate according to the maintenance manual. 15. Do not drop or throw parts. 16. If the terminal is rusted, it shall be treated with sandpaper before connecting. 17. Cables should not be twisted or bent by force. Because the deformed or damaged cable is the cause of poor operation and damage.

Main performance technical data

Items		Data
Outer contour dimension (length × width × height)		1895mm × 680mm × 1020mm
Wheelbase		1235mm
Minimum ground clearance		160mm
Maximum total mass		228 kg
Maximum capacity		150 kg
Electricity consumption		≥ 37Wh / km
Maximum speed		45 km/h
Gradeability		≥ 15°
Brake		Front brake hand operated/ drum brake
		Rear brake hand operated/drum brake
Shock absorber		Undamped mechanical type of front and rear springs
Tyre size and air pressure	Front wheel	70/90-17，225kPa；
	Rear wheel	80/90-17，250kPa；
Battery	Type	Lithium battery
	Capacity	60V26Ah
	Standard voltage	60V
Charger	Input voltage	(180～240)V
	Frequency	50Hz
Drive motor	Rated power	1500W
	Rated speed	442±40（r/min）
	Rated output torque	32 Nm（r/min）
Controller	Overcurrent protection	38±1A
	Undervoltage protection value	52±1V
Other electrical parts	Headlamp	12V/4.5W/4.5W
	Turn signals	12V/2.8W×4
	Brake lamp/ taillight	12V/0.96W/0.24W
	Rear license plate lamp	12V/0.8W

Torque value of main standard parts

Items	Quantity	Thread diameter (mm)	Torque value (Nm)
Vertical pipe lock nut	1	M26	28~32
Handlebar fixing bolt	1	M10	45~55
Front axle nut	1	M10	50~60
Rear axle nut	2	M16	100~120

Torque of fork shaft nut	1	M12	45~55
Rear shock absorber upper fixing bolt	1	M10	45~55
Rear shock absorber lower fixing bolt	1	M10	45~55

Except for the torque values of important parts listed in the above table, the torque ranges of other standard fasteners are shown in the table below

Items	Torque value (Nm)
5mm bolts and nuts	4～6
6mm bolts and nuts	8～12
8mm bolts and nuts	28～32
10mm bolts and nuts	35～45
5mm screw	4～6
6mm screw	7～11

Regular maintenance table

Position	Maintenance method	Maintenance time
Wheel bearing	Disassemble the front wheel bearings, replenish grease, check the wear of the bearings, and replace the parts if they are worn or damaged.	Once a year
Wheel axle	Remove the wheel shaft and check whether the wheel shaft is bent or deformed; If the wheel shaft is bent and deformed, it should be replaced and corrected.	Once every six months
Wheel	Check the yaw and runout of the front and rear wheels. If the yaw and runout of the front and rear wheels are too large, correct or replace the wheels in time.	The first month of the new vehicle, once every 2 years from now on
Brake handle lever	Adjust the free stroke of the front and rear brake handles within the specified range: 10mm ~ 20mm	Once every three months
Brake cable	Check the brake cable for interference and wear. Replace the brake cable if it is seriously worn.	Once a month
	Clean the brake cable and apply grease or lubricating oil	Once every 3 months
Brake shoe	Check the wear of brake shoes. If the wear of brake shoes exceeds the maintenance limit, replace the brake shoes in time.	Once a month
Seating washer	Check the damage of cushion leather cover and cushion foam. If the cushion leather cover and cushion foam are damaged, replace the cushion in time.	Irregular
Battery power	Check whether the battery has enough power, and if not, charge it.	Once a day If the battery is not used for a long

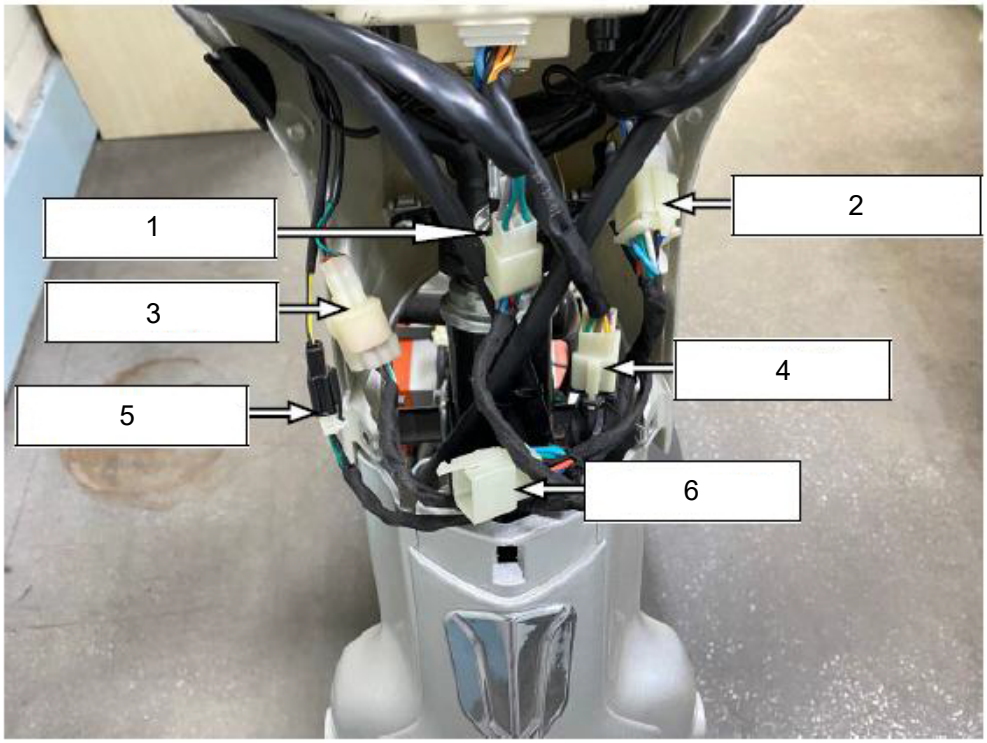
		time, check it once every month

Note:

When checking according to the items in the table, further cleaning, lubrication, adjustment or replacement shall be carried out if necessary. When driving for a long time under bad road conditions and high power conditions, the inspection frequency shall be increased. The items marked with **"*"** in the table should be handled by the qualified franchise repair shop.

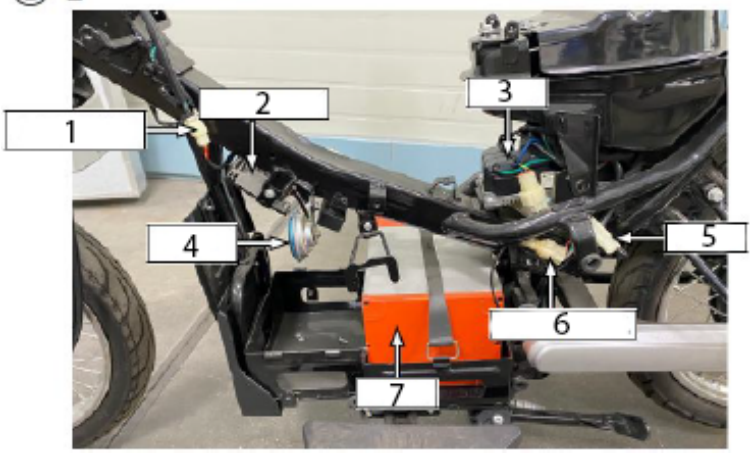
Wiring diagram

Ⓐ



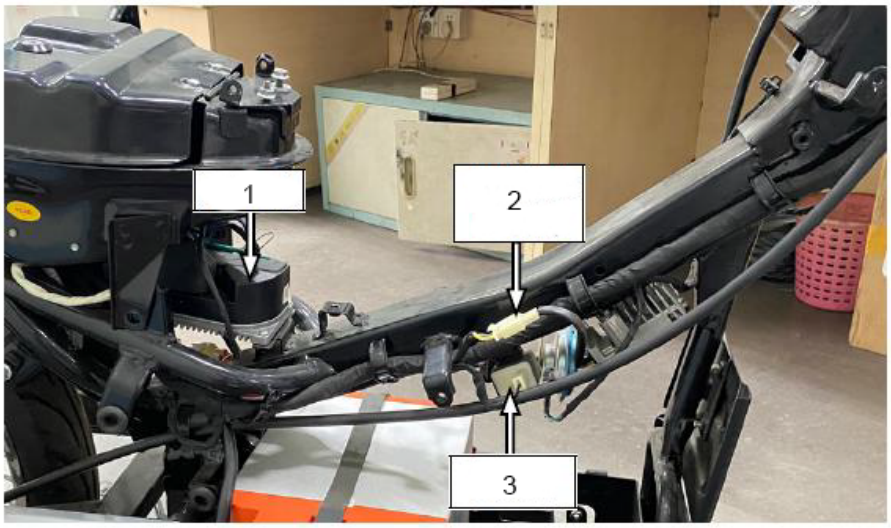
1 - Right combined switch wiring
2 - Left combined switch wiring
3 - Wiring of speed regulating handle
4 - Instrument wiring
5 - Wiring of front brake switch
6 - Headlamp wiring

Ⓑ-L

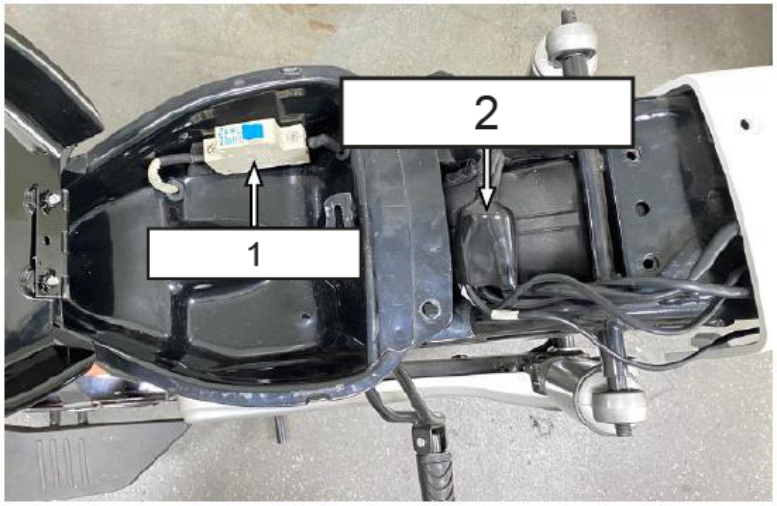


1 - Ignition switch wiring
2 - Voltage converter
3 - Controller
4 - Horn
5 - Fuse
6 - Wiring of side bracket switch
7 - Battery

Ⓑ-R



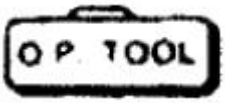
1 - Controller
2 - Wiring of voltage converter
3 - Flasher



2-Tail lamp and rear turn signal lamp wiring
1 - Air switch

Symbol description

Meaning of symbols in this manual:

Graphic symbols	The meaning of graphic symbols	Graphic symbols	The meaning of graphic symbols
	Measures to be prompted during operation, inspection and maintenance.		Use general tools.
	Special instructions or disposal measures proposed to prevent certain damage to vehicles.		Tightening torque specification: 50 Nm
	Special instructions or measures proposed to avoid a great injury or personal injury.		Use the recommended oil.
	When reassembling after disassembly, new parts must be replaced.		Use thread locking agent.

	Use special tools.		Use lithium grease.

Chapter II Lubrication System

Maintenance instructions	Lubrication position of the whole vehicle
Troubleshooting	Lubrication of each operating line

Lubrication position of the whole vehicle

Please use lithium grease the positions shown in the figure above.

All oils not specified in this manual shall be common oils.

All sliding surfaces and cables not shown in this figure shall be coated with oil or grease.

Lubrication of each operating line

The clutch control line and throttle control line shall be regularly checked. The method is to remove the upper end connection of each operating line, and fully maintain the wire rope and each fulcrum with lithium base grease.

Chapter III Inspection and Adjustment

Maintenance instructions	Suspension system
Battery	Braking system
Headlight dimming	Running system
Riser steering bearing	Brake control wire
Bolts, nuts and fasteners	

Maintenance instructions

This section introduces the checking and adjustment of various parts of ZS1500D-6 two wheeled motorcycle. The technical requirements for checking and adjustment are also introduced.

 Notes:

Unless otherwise specified or indicated in the maintenance interval table, inspect and adjust all parts of the ZS1500D-6 two-wheeler in accordance with this section before each use.

Technical specifications

The free stroke of front brake handle is 12-18 mm

The free stroke of rear brake handle is 12-18 mm

Front Tire pressure: 200 kPa for single and 200 kPa for double

Rear Tire pressure: 225 kPa for single and 250 kPa for double

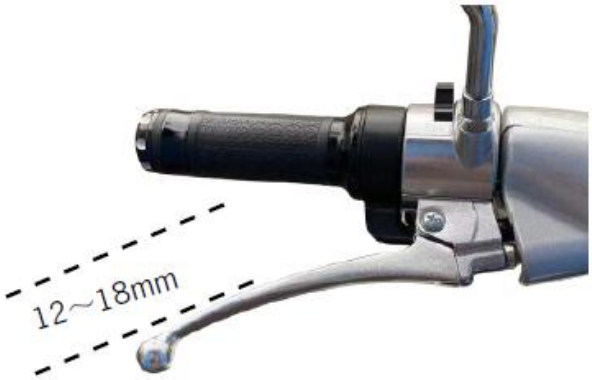
Tire size of front wheel 70/90-17 M/C

Rear wheel 80 / 90-17 M / C

Braking system

Check the free stroke of the front brake handle.

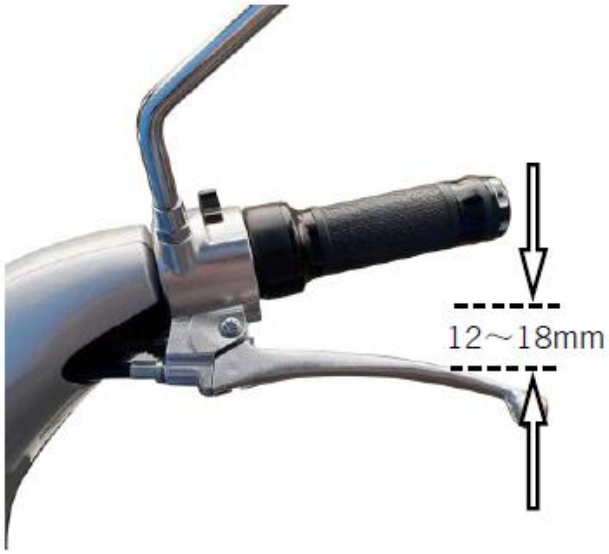
The free stroke of the brake handle is 12 ~ 18mm.



Check the free stroke of the rear brake handle.

The free stroke of the rear brake handle is 12 ~ 18mm.

If adjustment is needed, turn the adjusting nut to reach the specified free stroke position.



Running system

Size and pressure of tire

Check the tire pressure with a tire pressure gauge to see if it meets the recommended tire pressure requirements.

Check tire pressure

⚠ **Note:**

Check the tire pressure when the tire is at the normal temperature.

Tire size and recommended tire pressure

Tire size	Front tire		Rear tire	
	70/90-17 M/C		80/90-17 M/C	
Cold tire pressure	Single		Double	
	Front tire	Rear tire	Front tire	Rear tire
	200kPa	225kPa	200kPa	250kPa

If the tire pressure does not meet the specified requirements, check the tire for cuts, embedded nails or other sharp objects.

Spoke

Check whether the spokes of the wheel are loose or broken. S TOOL

Tighten the loosened spokes to the specified torque with the spokes nut fastening tool. Spokes nut torque:

2.45 ~ 4.9 Nm

If the spokes are broken, replace them as soon as possible.

1 - Spoke nut tightening tool

Battery

Disassembly of battery

First, open the glove box under the seat cushion, close the air switch, remove the fixing bolt of the right front pedal, remove the right cover, open the battery lock, open the battery pressing plate, pull out the power plug, and then take out the battery.

Installation of battery

Install in reverse order. When connecting the electrode wire, the positive pole must be connected first.

Note:

When disassembling and assembling the battery, the electric door lock shall be closed, and the air switch shall cut off power to the whole vehicle to avoid danger.

Headlight adjusting

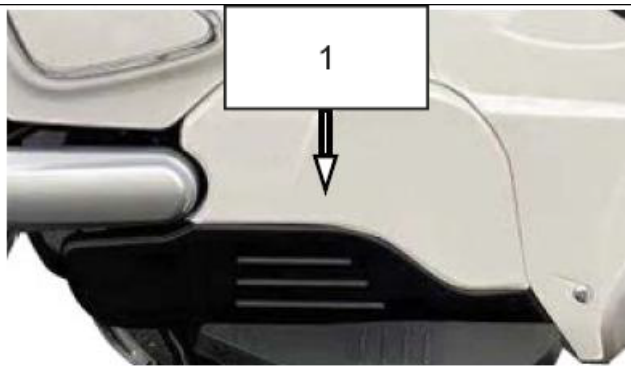
Check the direction of headlight before driving.

The headlamp can be adjusted vertically.

Adjustment method:

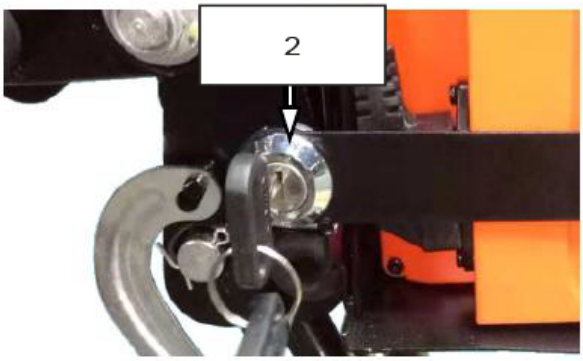
Release headlight M5 × 10 adjusting screw. Push the upper edge or lower edge of the headlamp inward to adjust the light height. After adjusting to the desired height, tighten the adjusting screw.

1 - Headlamp height adjustment screw



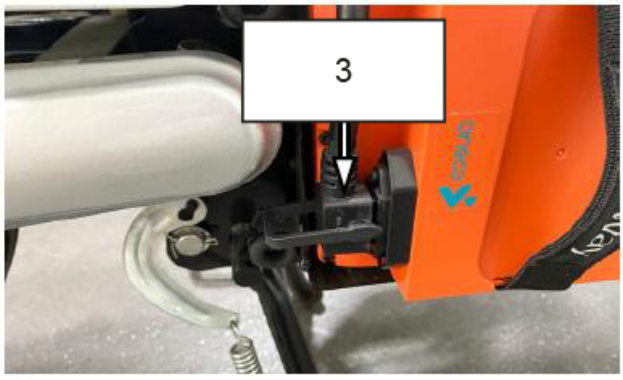
1

Remove the right front pedal and the right cover



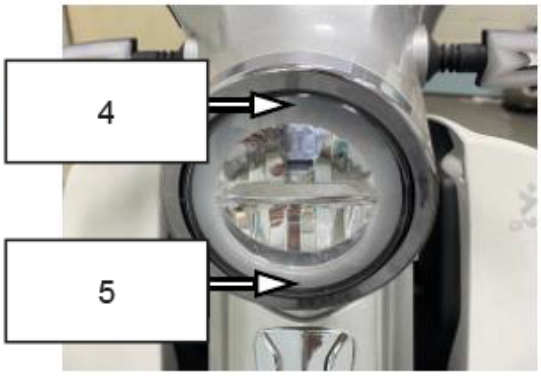
2

Battery lock



3

Power plug



4

Upper part of headlamp

5

Lower part of headlamp

Riser steering bearing

Support the motorcycle with the main bracket or other bracket to make the front wheel off the ground, and check whether the steering handle can rotate freely. If the steering handle can not rotate freely, and there is axial movement or stagnation, adjust the adjusting nut of the front fork riser.

1

Support the front wheel

2

Adjusting nut

Suspension system

Front suspension

Put the front brake in the braking state and press the front fork several times to check whether the front suspension works normally.

In case of abnormal noise or "click" sound, all fasteners shall be checked and tightened according to the specified torque value.

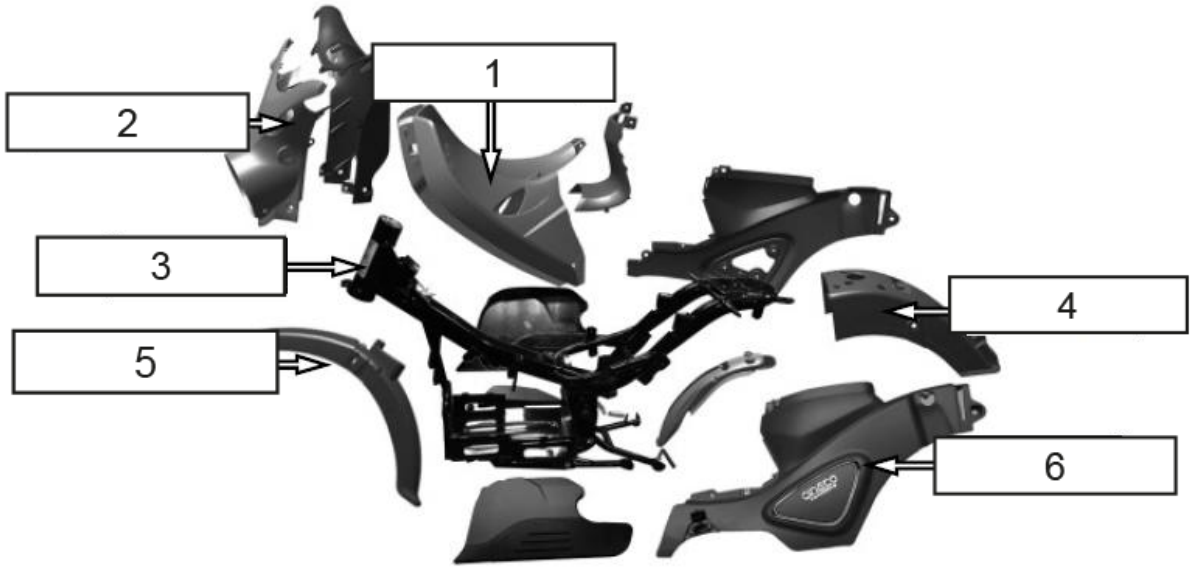
Rear suspension

Press the rear of the seat cushion firmly to check whether the rear fork sleeve is worn or damaged. If it is damaged, replace it. Check whether the whole suspension assembly is firmly installed and whether it is damaged or deformed.

Bolts, nuts and fasteners

All bolts, nuts and fasteners should be tightened according to the interval table. Check all split pins, safety clamps and locks.

Frame and cover



1 Windshield
2 Lamp shell
3 Frame
4 Rear fender
5 Front fender
6 Body cover

Maintenance instructions	Disassembly / installation of rear fender
Troubleshooting	Removal / installation of left and right body covers
Cover, headlamp and instrument	Rear lamp assembly

Maintenance instructions

During the maintenance of this part, special attention shall be paid to the covers, instruments and lamps not to be scratched or damaged.

Before disassembly, please turn off the power air switch and cut off the power of the whole vehicle.

This part mainly includes the disassembly and installation of covering parts and lamps.

Important torque figures	Armrest fastening screw	28～32N.m

Cover, headlamp and instrument

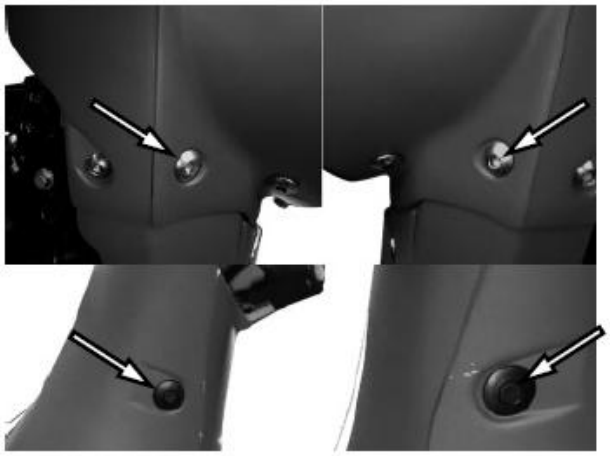
Disassembly procedures of cover, headlamp and instrument

1. Support the motorcycle on the flat ground with a side bracket, and remove 2 M5 × 14 setscrews on the headlamp to take out the headlamp.	2. Press the middle button of the expansion buckle of the middle guard plate, remove the buckle, and then take out the middle guard plate. Take care to handle it gently, and do not scratch the surface.
	
3. Remove the left and right battery box covers.  	7. Loosen 2 connecting nuts between the tail lamp and the rear fender, and remove the tail lamp. 
4. Remove the mounting screw from each of the left and right tool boxes. Remove the left and right tool boxes.	8. Remove 2 rear mounting screws of the vehicle body and 3 mounting screws from each of the left and right vehicle bodies.

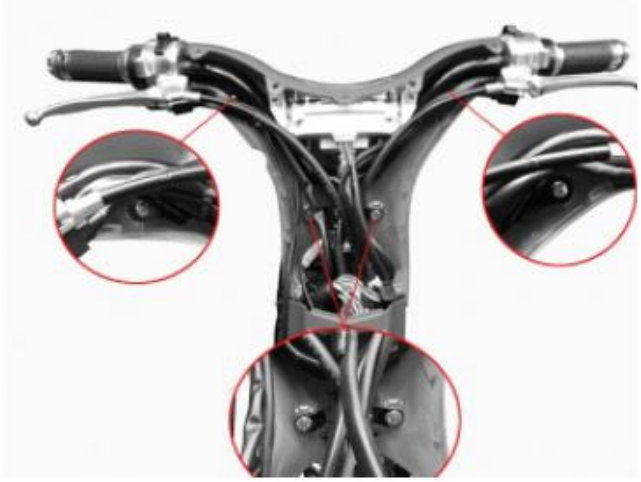
5. Remove the left and right windshield mounting screws. Remove the windshield.

6. Remove 6 rear fender mounting screws. Remove the rear fender

9. Remove the headlamp housing mounting screws and expansion buckles, and remove the headlamp housing.



10. Remove the instrument housing mounting screws and remove the instrument housing assembly.



11. Remove 3 connecting screws between the instrument and the instrument housing and take out the instrument.

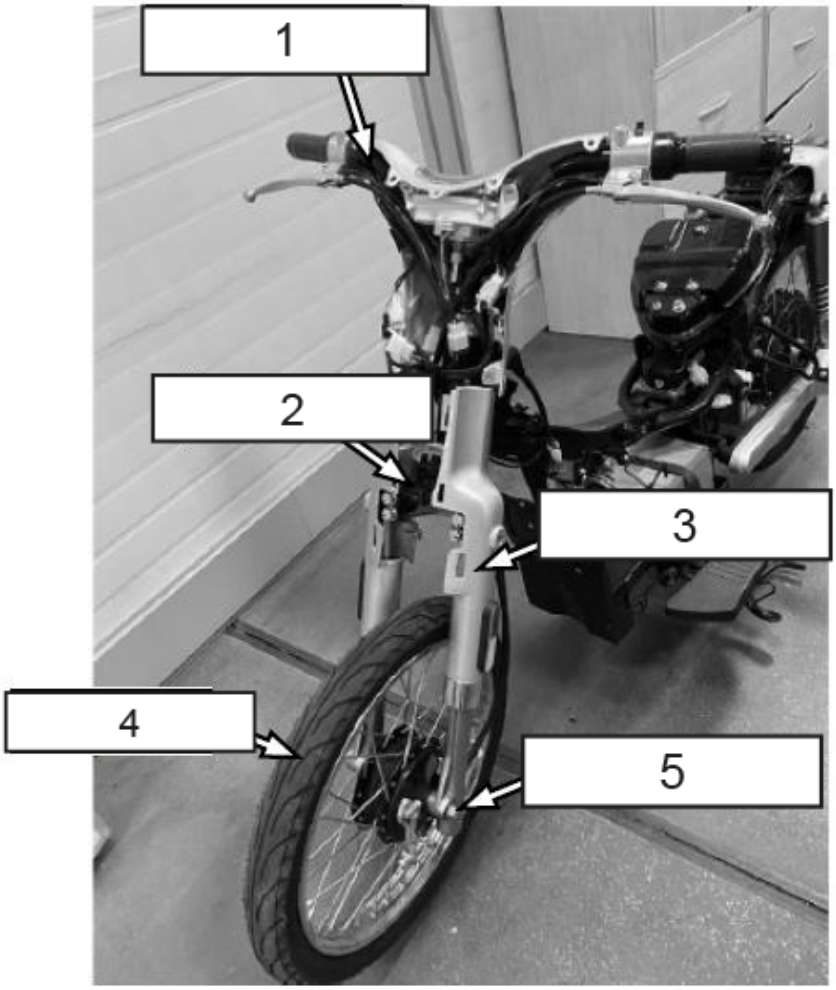
Installation procedures of cover, headlamp and instrument:

The installation steps of the cover, headlamp and instrument are in the reverse order of the disassembly. Pay attention not to scratch the cover and damage the bulb during installation.

Note:

In the process of disassembly, do not scratch the appearance surface of the cover and do not break the coak.

Front wheel, front suspension, steering column, front brake



1) Control sub-assembly
2) Steering column
3) Front fork assembly
4) Front wheel components
5) Front axle

Maintenance instructions	Front wheel
Important torque figures	Front suspension
Troubleshooting	Steering column
Control sub-assembly	Front brake

Maintenance instructions

When maintaining the front wheel, the motorcycle should be reliably supported by a jack or other bracket

under the engine to keep the front wheel off the ground. Only tires marked "TUBELESS" should be used.

Inhalation of friction plate dust will cause respiratory discomfort. Do not use air duct or dry brush to clean the brake components. Please go to the professional repair network for repair and maintenance.

Important torque figures

Front axle	55～65 N.m	Fastening bolts of front shock absorber plate	45～55 N.m
Handlebar fixing bolt	45～55 N.m	Front fork riser nut	28～32 N.m
Fastening screw of brake disc	28～32 N.m		

Troubleshooting

Unstable direction 1. The bearing of riser is damaged; 2. Insufficient tire pressure; 3. Tire is damaged; 4. The wheel bearing is damaged. 5. The adjusting nut of riser is too tight.	**Difficulty in turning the wheel.** 1. The wheel bearing and axle sleeve are damaged 2. The tire pressure is not enough. 3. The brake disc does not reset.
Steer to one side or not in a straight line 1. The adjustment of left and right shock absorbers is uneven; 2. The front fork is bent; 3. The front axle is bent and the wheel is not installed correctly; 4. The wheel bearing is damaged;	**Suspension is too soft** 1. The elasticity of the front fork spring is not enough; 2. The hydraulic oil level is too low or the fluid type is wrong. **The suspension is too hard** 1. The hydraulic oil level is too high or the fluid type is wrong. 2. Bending of front shock absorption fork tube 3. The front shock absorber is blocked.
Front wheel runout 1. Deformation of wheel rim 2. Wear of wheel bearing 3. Deformation or looseness of wheel spokes 4. Front axle is loose	**Poor brake performance** 1. The brake shoe is worn; 2. There is water or oil on the brake shoes.

5. Tire is damaged	

Disassembly / assembly of control sub-assembly

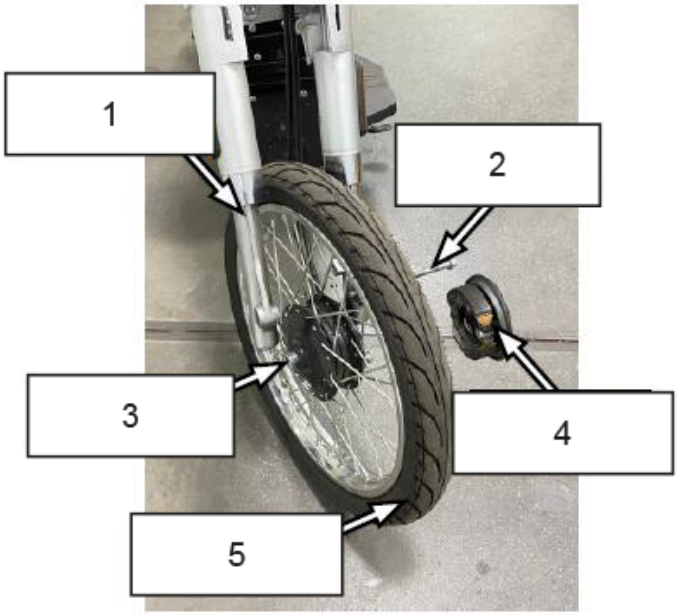
1. Take out the front brake cable. 	5. Remove the left handle ring screw. 
2. Take out the rear brake cable. 	6. Remove the left combined switch screw. 
3. Remove the fixing screw of the speed regulating handle with an Allen wrench and take out the speed regulating handle.	7. Remove the fixing nut of the steering handle tube. 

4. Remove the right combined switch fastening screws.

Maintenance requirements

Sequence	Procedure	Quantity	Remark
Disassembly sequence		The installation sequence is reverse to the disassembly sequence	
1	Front and rear brake cable	2	Note: do not bend or twist the cable
2	Left combined switch screw	2	
3	Left combined switch	1	
4	Right combined switch screw	2	
5	Right combined switch	1	
6	Fixing nut of steering handle	1	
7	Steering handle bushing	1	Pay attention to the position of marks during installation

Front wheel disassembly / assembly



1) Front fork components
2) Front axle
3) Front wheel right bushing
4) Front brake
5) Front wheel components

Caution

Soiled brake drums and friction discs may reduce braking performance. Please pay attention to replacing friction discs and cleaning soiled brake drums.

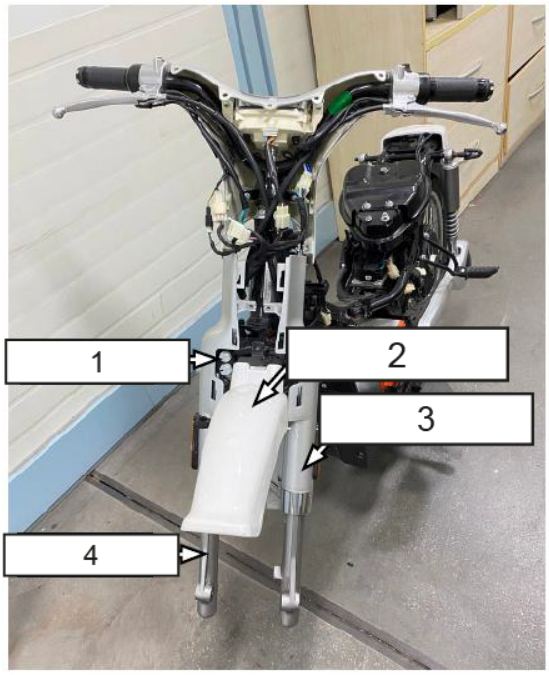
The vehicle bearing shall be replaced in a complete set.

Maintenance requirements

Sequence	Procedure	Quantity	Remark
Disassembly sequence		The installation sequence is reverse to the disassembly sequence	
1	Front axle nut	1	Tightening torque: 55-65 Nm
2	Front axle	1	Apply lithium grease

3	Front wheel right bushing	1	Apply lithium grease during assembly
4	Front brake	1	

Front suspension disassembly / assembly

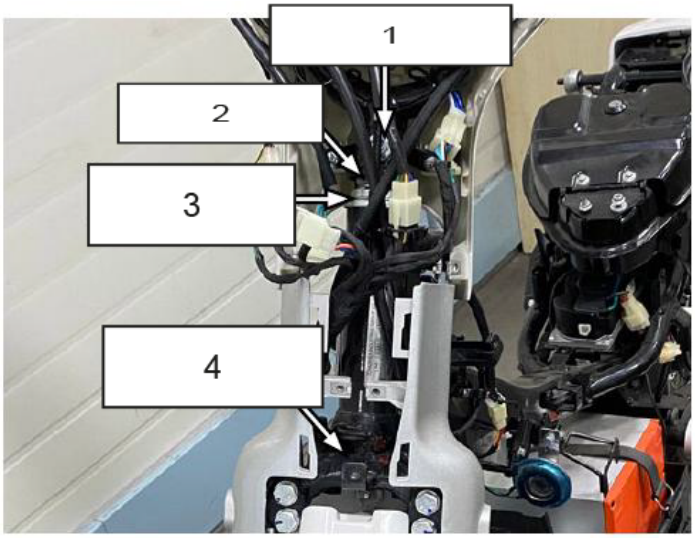


1) Shock absorber bolt
2) Front fender
3) Decorative cover for front fork
4) Front shock absorber

Maintenance requirements

Sequence	Procedure	Quantity	Remark
Disassembly sequence		The installation sequence is reverse to the disassembly sequence	
1	Front fender bolts	3	Bolt M6 X 16
2	Front fender	1	
3	Front shock absorber mounting bolt	4	Bolt M8x35, just loosen it, be careful to drop it
4	Front shock absorber	2	

Disassembly / assembly of steering column



1. Steering handle fixing bolt
2. Steering column lock nut
3. Steering column adjuster nut
4. Steering column assembly

Caution

1. Put the concave surface of the lower cage faces downward, and the concave surface of the upper cage faces upward; The retaining ring on the bearing should be slightly flat, and the face upward;

2. First adjust the steering column adjusting nut to 35 ～ 45 Nm, then use a torque wrench to loosen the steering column adjusting nut (the adjusting nut can be turned freely by hand), and then use a torque wrench to adjust to 10-12 Nm, The steering column rotates flexibly, without jamming, and without interference within the maximum rotation angle.

Maintenance requirements

Sequence	Procedure	Quantity	Remark
Disassembly sequence		The installation sequence is reverse to the disassembly sequence	
1	Steering column lock nut	1	Assembly torque 28 ~ 32 Nm
2	Adjusting nut	1	The assembly torque is 10 ~ 12 Nm. Turn the steering column repeatedly during assembly.
3	Steering column gasket	1	
4	Direction column bearings	2	
5	Steering column assembly	1	Turn the steering column repeatedly during assembly

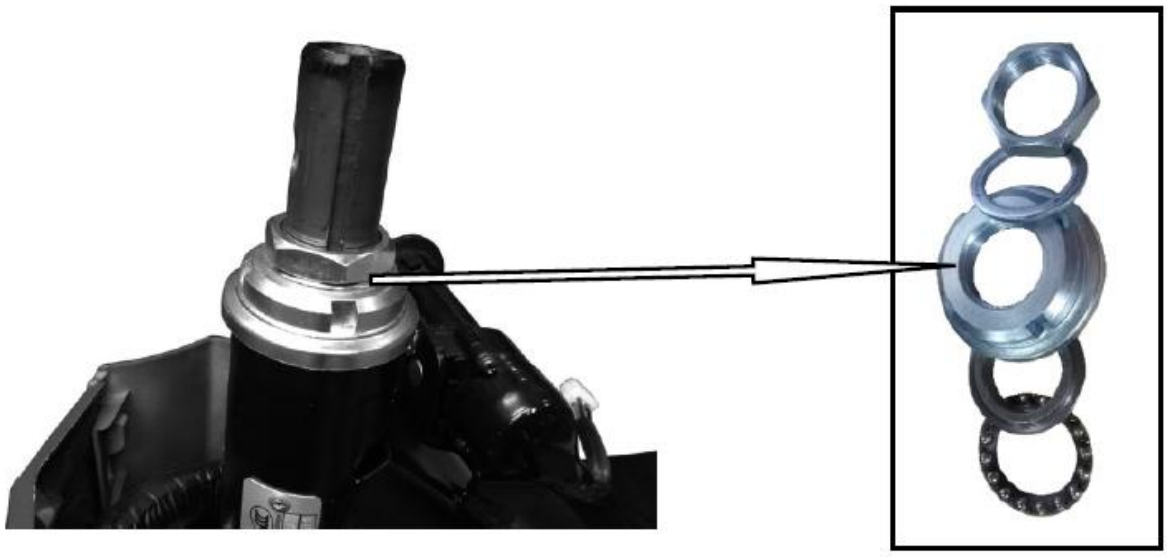
6	Lower connecting plate damping bolt M10 × 40	4	Torsion force of left and right front damper: 45～55 Nm;

Assembly of directional column

Apply enough lithium grease on the surface of the bearing.

Place the steering column into the frame riser.

Put in the bearing and adjusting nut in turn. While tightening the adjusting nut, turn the steering column repeatedly to make the bearing roller fit with the washer. Adjust the adjusting nut of the steering column to 35 ~ 45 Nm, then loosen the adjusting nut of the steering column (the adjusting nut can be freely turned by hand), and then use the torque wrench to adjust to 10 ~ 12 Nm. after that, the steering column can rotate flexibly without jamming. There is no interference in the range of maximum rotation angle.



Front brake

Maintenance instructions

Soiled brake discs and friction discs may reduce braking performance. Please pay attention to replacing friction discs and cleaning soiled brake discs.

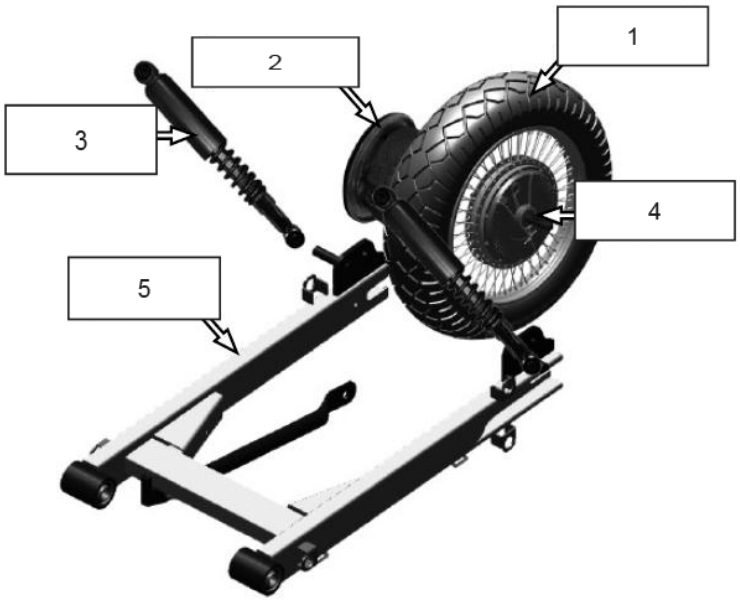
Do not clean the brake components with air duct or dry brush in case of inhaling friction plate dust and causing respiratory discomfort. For repair and maintenance, please go to specialized maintenance centers.

Before driving a motorcycle, the running state of the brake must be checked.

Troubleshooting

Part name	Damage form	Failure phenomenon	Maintenance method
Brake shoe	Excessive wear of friction plates	The brake fails or the brake shoe cannot return	Replace brake shoes in complete sets.
	The end face of the brake shoe is worn into a groove or excessively worn by the brake convex wheel.	Abnormal sound or failure of rear brake during braking	
	The contact area between the brake shoe and the brake drum is too small	Brake failure	File or replace brake shoe friction plate
	The spring force of brake shoe is insufficient or broken	The brake shoe cannot return	Replace return spring
Brake cam	The moving parts are rusted or	The brake cam does not rotate flexibly. The brake fails or cannot return	Clean and lubricate the brake protrusion.
	Wear of brake cam arc surface	Brake failure	Replace the brake cam

Rear wheel, rear brake, rear suspension devices



1) Rear wheel
2) Rear brake
3) Rear shock absorption
4) Motor assembly
5) Rear fork assembly

Maintenance instructions	Rear fork assembly

Troubleshooting	Rear shock absorber
Rear wheel	

Maintenance instructions

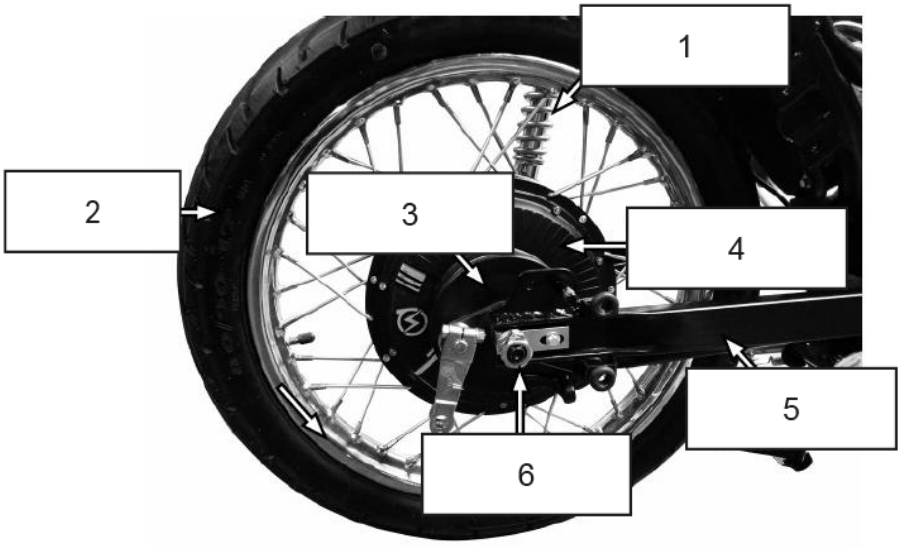
This section describes the removal, installation and maintenance of the rear wheel, rear brake, rear fork, rear shock absorber and rocker link. When performing repair and maintenance for the rear wheel and rear shock absorber, the motorcycle should be reliably supported by an air jack or other bracket.

Important torque figures	
Rear axle fastening nut M16	100～120N.m
Rear fork shaft nut M10	45～55N.m
Rear shock absorber nut M10	45～55N.m

Troubleshooting

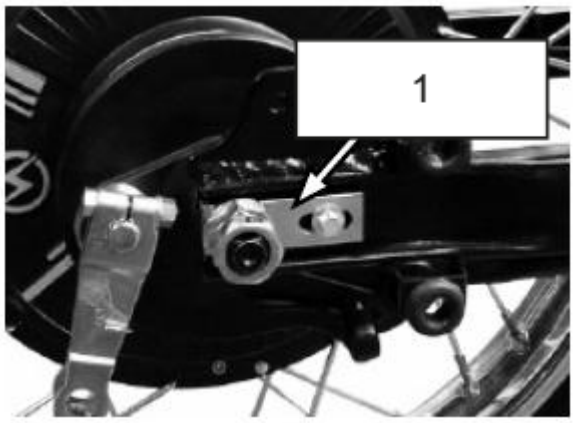
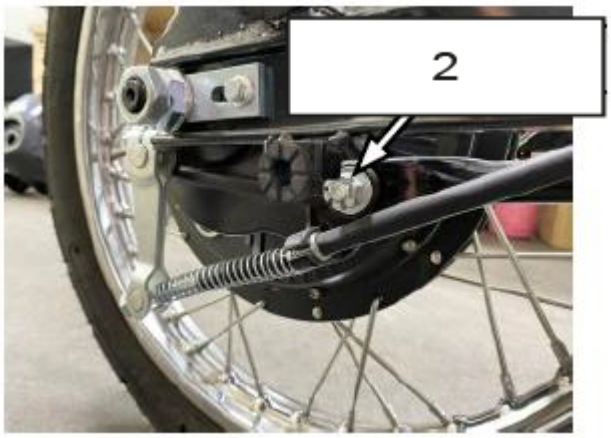
Swings of the rear wheel 1. Bent wheel rim; 2. Worn rear wheel bearing; 3. Low tire pressure; 4. Inconsistency in the left and right of the regulator; 5. Damaged wheel sleeve. Noise Loose fasteners.	Difficulty in turning the wheel. 1. Damaged wheel bearing and shaft sleeve; 2. Incorrect wheel installation; 3. Bent rear axle 3. Rear brake friction plate can not reset Abnormal suspension 1. Too hard or too soft damping spring; 2. Damaged rear fork bearing; 3. Bent shock absorber.

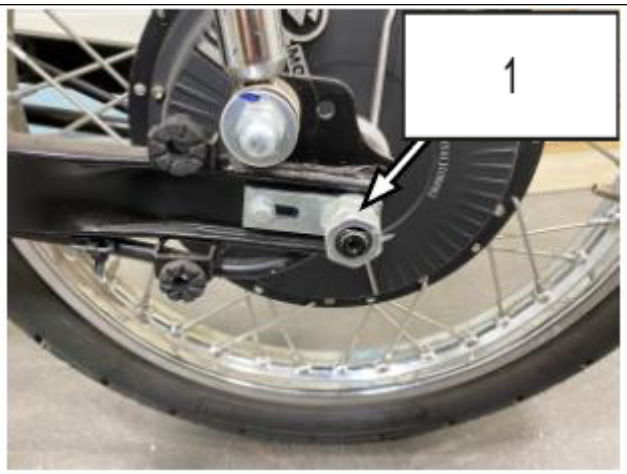
Rear wheel



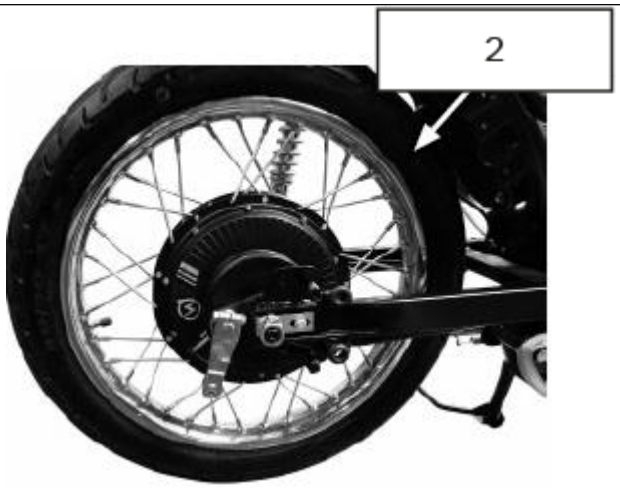
1) Rear shock absorption
2) Rear wheel assembly
3) Rear brake
4) Motor assembly
5) Rear fork assembly
6) Rear axle fastening nut

Disassembly steps of rear wheel

1. Screw out the rear wheel locking bolt of the motor anti rotation plate.  1) Motor anti rotation plate	3. Take out the rear brake cable and remove the rear brake brace nut.  2) Rear brake brace nut
2. Screw out rear axle fastening nut M16×1.5.	4. Take out the rear wheel assembly.



1) Rear axle fastening nut

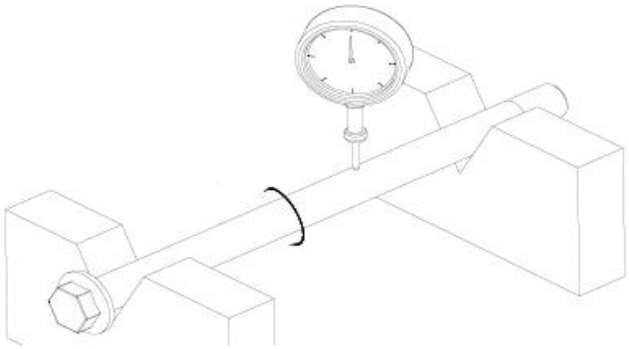


2) Rear wheel assembly

5. Take out the rear brake and check whether the front brake shoe is worn. If necessary, replace the brake shoes.

Inspection of flat fork shaft

Place the flat fork shaft on the V-shaped seat, and test the deflection of the flat fork shaft with a dial indicator. If the figure goes beyond or equal to 0.2 mm, replace the flat fork shaft with a new one.



Rotate

Rear fork

Disassembly steps of rear fork:

1. Remove the rear wheel assembly first (refer to disassembly steps of rear wheel).

2. Remove the rear shock absorber upper and down fastening nuts. Remove the rear shock absorber.

	
3. Loosen the flat fork shaft nut M14 × 1.5, pull out the flat fork shaft from the left side and pull out the flat fork backward. 	
Warning: Tighten the flat fork shaft fastening nut to the specified torque of 75 ~ 85 Nm.	

Chapter IV General Introduction of Electrical System

Precautions for circuit inspection	System principle and structure

Precautions for circuit inspection

1. When disconnecting and connecting the connector, turn the ignition switch to the off position to avoid damage to the electrical components.

2. When checking the circuit, please adopt the probe that can be inserted from the front and back of the connector and reliably contacted with the terminal.

3. The power supply and relevant electrical components shall be disconnected during the inspection of the circuit.

4. When using voltage check, check the battery voltage first.

5. When there is a fault in the electrical system, it is generally diagnosed according to the following steps:

A. Observe the fault performance to locate the faulty subsystem;

B. Using the elimination method and the circuit diagram to minimize the fault range;

C. Check the circuits of subsystems for open circuit, short circuit or wrong connection;

D. Check the relevant components for failure or damage.

6. When investigating the circuit fault, check the place that is easy to dismantle first. Parameter detection method and part replacement method can be adopted, but when using part replacement method, make sure that there is no overload in the circuit to avoid damaging new parts.

7. Please prepare multimeter and clamp meter for circuit inspection.

8. Most of the instantaneous electrical failure is caused by the wire connector or wire failure.

System principle and structure

The electrical system is an essential guarantee that the motorcycle can operate normally, safely, reliably and efficiently. It covers a considerable amount of disciplines, including motor, electrical, electronic technology, computer, electrochemistry, acoustics, optical materials, etc. And with the development of electronic technology in particular, the motorcycle electrical system will undergo significant changes. The electrical system is more advanced than traditional motorcycles in that it applies more advanced automotive electronics and is much more complex. It consists of the following subsystems.

- Power supply system
- Starting system
- Engine management system
- Lighting signal system

- Information display system

In the following chapters, we will describe them separately.

Battery and power supply system

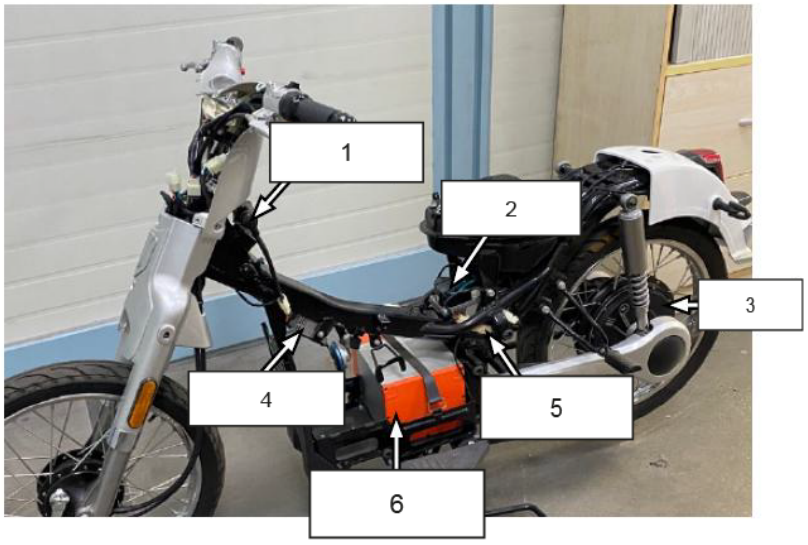
Summary	Main components
Circuit diagram	Main fault diagnosis
Parts layout	

Summary

Power supply system is the premise of vehicle electrical system, which can provide sufficient power for other electrical subsystems. The functions include: charging, storing and discharging. Power supply system is characterized by large power supply capacity, up to 168W. It consists of the following parts:

- Motor
- Converter
- Battery
- Controller
- Combined ignition switch
- Fuses

Parts layout



1) Ignition switch
2) Controller
3) Motor
4) Converter
5) Main electrical harness

6) Battery

Main components

Charger

Chargers are an important part of electric vehicles, and the quality of chargers affects the service life of batteries a lot. The charger is mainly composed of rectification filter, high voltage switch, voltage exchange, constant voltage and charging control.

This charger has trickle function, and notice the one-time charging time generally cannot exceed 12 hours, otherwise it will affect the life of the charger. The charger should be in a dry and ventilated environment when charging; Avoid fire sources nearby when charging batteries; The charger cannot be covered with articles to avoid fire.

When charging, first connect the charging cable plug to the charging socket properly, and then insert the power plug into an ordinary power socket. After the charging is completed, the power supply of the socket shall be cut off first, and then the output plug shall be unplugged from the socket of the battery box. Keep the charging line properly or put it in the glove box with the vehicle.

Warning

1. Chargers must be waterproof and moisture-proof. They should be used or stored in a dry environment and must not be dropped again to prevent electric shock accidents.

2. It is forbidden to touch and turn on the charger when charging, because there is high voltage current in the charger to prevent electric shock casualties.

3. When the charger is getting hot during charging, it should be kept in a well-ventilated place, and should not be charged near inflammable and explosive dangerous goods such as carpets and wooden floors to avoid fire or explosion accidents.

4. When charging, the voltage and current of the battery must be consistent with the specifications of the charger, and the polarity of the output plug of the charger should be consistent with that of the battery pack, otherwise the charger and battery will be damaged.

5. When the indicator light of the charger can't change color for a long time (more than 8 hours), it is always in red indicating signal state, so the charger should be stopped immediately and sent to the service department for inspection.

6. When the charger fails, professional personnel must repair and handle the charger.

Battery

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

1. The lithium battery of the new car 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 long (more than 2 months), the user shall replenish the battery before use. After the charging for 7-8 hours, the green indicator light of the charger is on, indicating that battery has been fully charged, and the charging can be finished.

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. Use and maintenance of battery

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 0°C ∽ 35°C 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.

Motor

The vehicle adopts DC and brushless rear wheel drive motor, with an efficiency of more than 85%. It has the advantages of strong climbing performance, fast speed, low driving current, long driving range and good sliding effect.

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 location 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.

Combined ignition switch

1. Outline drawing

2. How it works

The ignition lock cylinder with double slot and 8-tooth key is the main switch of the whole vehicle power supply. It

is also the head direction lock.

3. Parameters

Switch functions

Linecolor / Gear	Red	Black	Key	Locking tab
			Cannot be withdrawn	Not protrude
			Can be withdrawn	Not protrude
			Can be withdrawn	Protrude

Switch key inter-opening rate should be no more than 0.1%;

Rated working current of switch: 20A.

4. Possible failures

Invalid lock cylinder, causing inflexible switch or failure to open the switch with the key;

Failure of the switch contact, causing the failure of the switch;

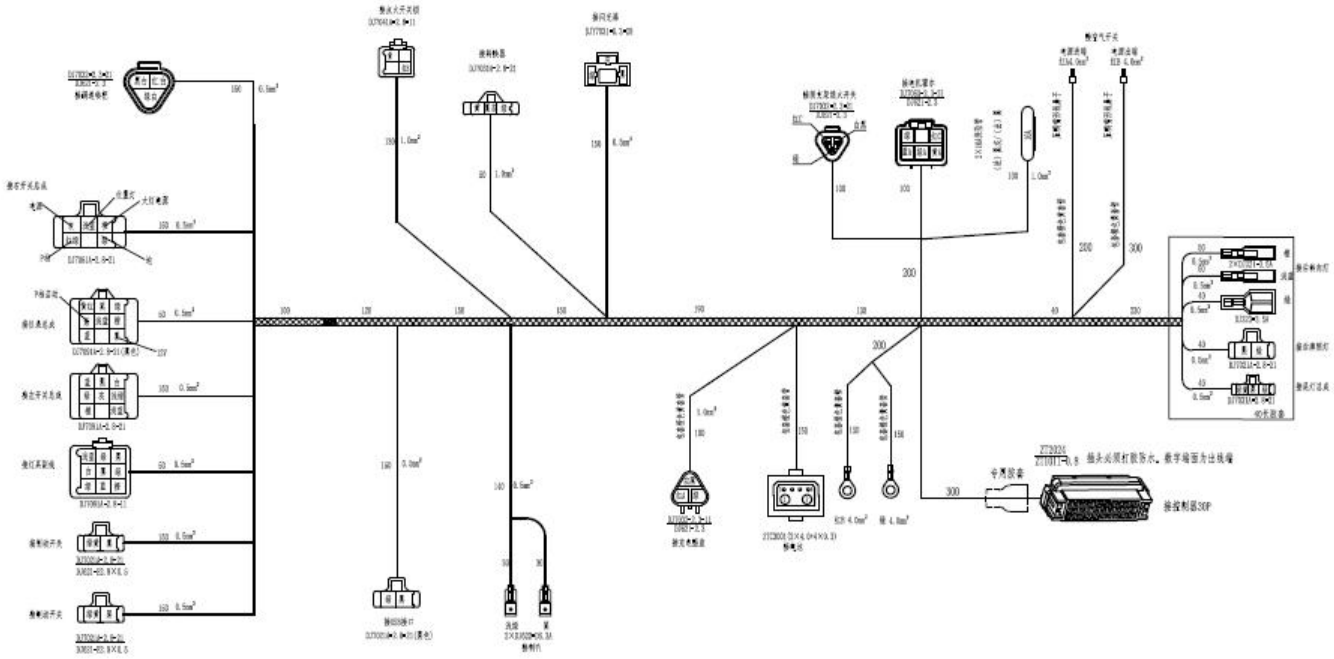
The contact short circuit between the switch contact and the shell, causing the main fuse to burn out and the whole vehicle has no power;

Open circuit or short circuit to ground of outgoing line;

Failure in the locking tab, causing failure in the front direction lock.

Wire harness

1. Outline drawing



2. How it works

The wire bundle consists of wires of various specifications, connector sheaths, terminals, conduit pipes, tapes, fuse and other parts of various specifications through bifurcation, riveting, wrapping and assembly. Through the connection of wire harness, the electrical and electronic equipment of the whole vehicle can work normally.

3. Parameters

The on-off status of all colored wires shall conform to the electrical wiring diagram;

Riveting of each branch and terminal shall be firm and connected well;

The conduit pipes and the tape should be tightly wrapped without looseness;

All connectors and corresponding electrical and electronic equipment shall be reliably connected.

4. Possible failures

Failure assembly of the terminal and connector and loose;

Short circuit to ground or adjacent wires caused by damaged wire sheath;

Corrosion at the fork, causing unreliable connection or open circuit;

Instantaneous failure and poor contact of wire head or wire (most instantaneous electrical failures are caused by this);

Poor contact or burnt out of the fuse;

Unstable installation of wire harnesses on the body of the car to tie the turn, causing the wire vibration wear loss or poor contact

Main fault diagnosis

Failure phenomenon	Possible causes	Solutions:
No electricity in the whole car, i.e. when the key is turned on, there is no display on the instrument, and other electrical functions cannot be performed.	Burnt out main fuse;	Replace the main fuse
	Poor contact of main fuse circuit;	Plug in again
	Poor contact of the positive and negative lines of the battery;	Reconnect
	No electricity in the battery;	Charge or replace it
	Ignition switch failure;	Repair or replace
	Poor connection between ignition switch outgoing line and main cable;	Plug in again
	Open circuit or short circuit of main cable.	Repair or replace
Low battery voltage	Too long storage of the whole vehicle	Charge with DC stabilized voltage charger
	Vehicle charging circuit fault or too large vehicle quiescent current	Check the charging circuit and quiescent current of the whole vehicle
	Decaying battery capacity, battery does not store power, battery self discharge	Replace the battery
The battery is not fully charged.	Poor connection between outgoing line of charger and main cable or magneto	Plug in again
	Open circuit or short circuit of main cable	Repair or replace
	Charger failure	Replace the charger
	Batteries failing to store power	Replace the battery
Battery overcharge: The battery shows a large volume of gas or deformation	Charger failure	Replace

Control switch

1. Outline drawing

	
Left combined switch	Right combined switch

 Speed regulating handle	 Side bracket switch
 Controller	 Transfer switch

2. Switch function

Left combined switch functions

							Orange	Gray	Light blue			Light green	Green
		White	Black	Blue	⇦	Left turn	○	○				Light green	Green
	Low beam	○	○		●		○	○	○		Horn	○	○
	High beam		○	○	⇨	Right turn		○	○			○	○

Right combined switch functions

		Green and red	Green		Orange	Gray	Light blue
P gear	Access	○	○	Emergency lamp	○	○	○
	Break	○	○		○	○	○

I. Malfunctioning phenomenon: motor does not run.

Trouble causes and solutions:

1. Fault cause: the power supply fuse of the whole vehicle is blown or tripped in the air, resulting in the power supply circuit being blocked;

Solution: a. replace the safety tube; b. re open the air switch.

2. Fault cause: the battery voltage is too low, causing the controller to be under-voltage protected;

Solution: charge the battery.

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

Solution: a. check the reason of high battery voltage and troubleshooting; b. battery replacement

4. Fault cause: speed control handle malfunctioning;

Solution: replace 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 and 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 is not retracted or the side bracket switch is short-circuited, resulting in the side bracket being in a protected state;

Solution: a. retract the side support; b. replace the side bracket switch.

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

Solution: repair or replace the motor assembly.

II. Malfunctioning phenomenon: 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: the gear is in low gear;

Solution: shift to high speed gear.

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

Solution: replace speed control handle.

III. Malfunctioning phenomenon: the motor can rotate by twisting the speed knob, but it stops again after a few seconds and appears repeatedly.

Fault cause: this fault is mostly caused by low battery voltage of electric vehicles. The battery has the phenomenon of floating power, that is, the battery voltage is relatively high when not loaded, and the battery voltage drops sharply after a load, which will be lower than the undervoltage protection value, causing the controller to undervoltage 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. Malfunctioning phenomenon: the noise and current of ordinary speed riding motor are relatively large.

1. Fault cause: damage in the controller MOS tube;

Solution: replace the controller.

2. Fault cause: the motor is damaged; Such as short circuit between turns of the motor windings, large interference of Hall signal output, etc., and large interference of Hall signal output.

Solution: This kind of fault is difficult to be measured and detected by multimeter. The replacement method can be used to replace the new motor and check whether the problem still exists. If the problem is solved, the fault is in the motor.

3. Fault cause: the mismatch between the controller and the motor Hall will also cause the motor noise;

Solution: replace it with a matching controller.

V. Malfunctioning phenomenon: No-load is normal. Screw the governor handle at the place with excessive load or large slope to start the electric car. Sometimes, it will feel that the motor has forward force, but the electric car still does not move forward. After a few seconds, the force disappears. After the handle is reset, add the handle again, which repeatedly produces the above phenomenon.

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 to avoid affecting the service life of the motor or controller.

VI. Malfunctioning phenomenon: when the electric vehicle starts, sometimes it needs help.

1. Fault cause: controller fault;

Solution: replace it with a controller of the same model.

2. Fault cause: poor contact of motor phase line;

Solution: reconnect the motor phase line.

VII. Malfunctioning phenomenon: stop-and-go in the process of riding

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. Malfunctioning phenomenon: the speed control handle is not reset during the whole vehicle riding, and the brake cannot provide power-off protection.

1. Fault cause: the brake switch is damaged;

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

2. Fault cause: the brake switch circuit is not connected or falls off;

Solution: check the circuit and eliminate corresponding faults.

3. Fault cause: the brake input circuit inside the controller is broken;

Solution: replace the controller.

IX. Malfunctioning phenomenon: when the whole vehicle is riding, the speed regulation sometimes has no effect after braking.

Fault cause: brake handle fails or is damaged after being used for a long time;

Solution: replace the brake switch.

X. Malfunctioning phenomenon: short cruising range.

Fault 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 related to objective conditions: 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. From the 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, it 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.

2. From other aspects:

a. Whether the battery quality is good or bad, whether the battery capacity is worthy of the name and whether the temperature characteristics are good; b. The cooperation of the controller and whether the undervoltage value of the selected controller is too high; c. Whether the selected motor specification and the supporting of the whole vehicle are reasonable.

3. From the objective situation:

a. Vehicle load; b. The rolling resistance of the riding road is different from that of the road; c. Whether the cyclist is used to braking frequently and whether the cyclist starts frequently.

Solutions:

a. Select high efficiency motor; b. Match the parameters of controller and motor and set reasonable undervoltage value; c. Select batteries with high energy density; d. Do not overload; e. Develop good riding habits.

Lighting signal system

Summary	Main components
Circuit diagram	Main fault diagnosis
Parts layout	

1. Overview

Lighting signal system is an important guarantee for the safe driving of vehicles, which includes the headlamp lighting system, signal lamp control system, and horn system.

Headlamp lighting system:

When the vehicle is driving at night, it needs the headlamp to illuminate the road and remind the surrounding vehicles and people of the existence of the vehicle. When driving at medium and high speed, it uses the high beam lamp, and when meeting, it uses the low beam lamp. The low beam lamp is required to be anti glare.

Signal lamp control system:

When the vehicle is turning, it is necessary to prompt the surrounding vehicles and people to avoid reasonably by flashing the turn signal; When driving at night, the tail light is needed to indicate the existence of the vehicle and illuminate the license plate number; When braking, you need to light up the brake light to indicate that the vehicle behind is braking and decelerating. The flashing of turning signal lamp is controlled by switch and flasher, and the other lamps are only controlled by switch.

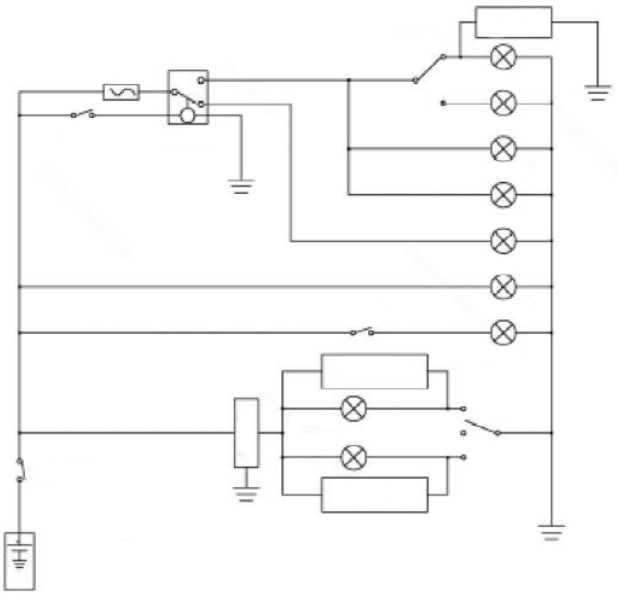
Horn system:

If other vehicles or pedestrians are obstructing or may hinder the driving of the vehicle, the horn can be used to prompt to ensure driving safety. The operation of the horn is controlled by the horn button.

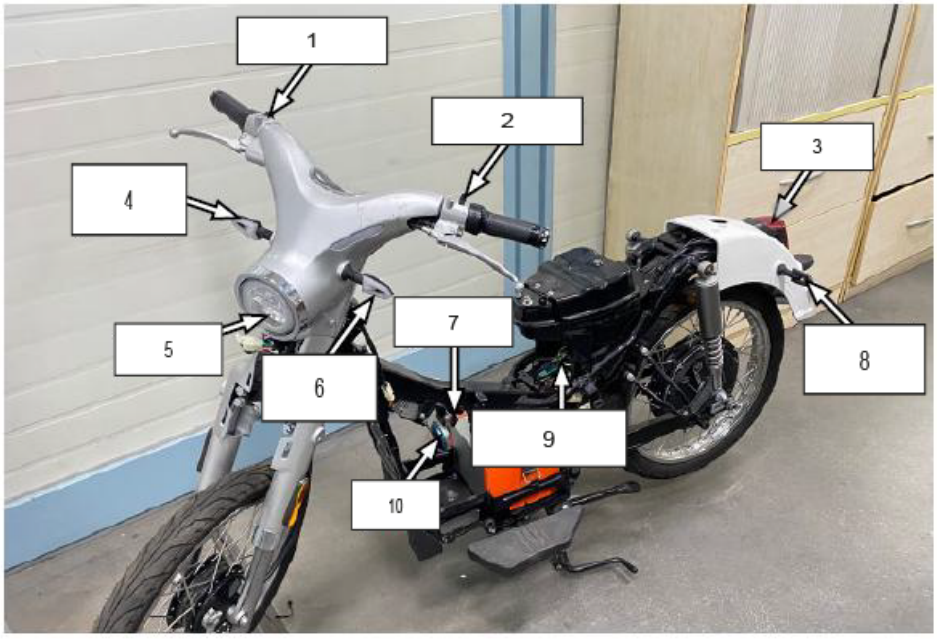
Components:

- Headlamp (including daytime running lamp)
- Combined rear position lamp
- Turn signals
- Horn
- Headlamp relay
- Flasher
- Front brake light switch
- Rear brake switch
- Left and right combined switch

Circuit diagram



Parts layout



1) Right combined switch
2) Left combined switch
3) Combined tail lamp
4) Front right turning signal
5) Headlamp
6) Front left turn signal lamp
7) Flasher
8) Rear left turn signal lamp
9) Main electrical harness
10) Horn

Main components

Headlamp

1. Outline drawing

2. How it works

The high beam filament is located at the focal point of the parabolic surface of the reflector of the headlamp. The light is reflected by the reflector and becomes a parallel beam, which is then scattered by the lamp glass to illuminate the road surface within 100m in front of it; The low beam filament is located at the front and upper part of the focus, and the reflected light can illuminate the road within 30 meters in front. Because there is a light shield under the lamp bead, the light is not dazzling.

3. Parameters

Headlamp led specification: 4.5 / 4.5W;

Position lamp specification: LED2.2W.

4. Possible failures

Lamp bead failure;

Water or dust in the lamp;

Loose PCB welding;

Smeared glass slide of lamp shell;

Lamp line open circuit or short circuit;

The mirror deformed at high temperature;

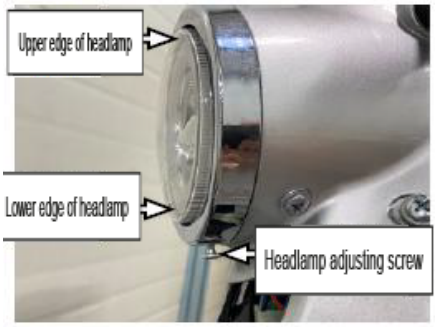
Broken or loose baffle;

Slanting light.

5. Lighting adjustment

Up and down adjustment: loosen the adjusting screw at the lower edge of the headlamp, press the upper edge of the headlamp, adjust the light to move up, press the lower edge of the headlamp, and vice versa.

Left and right adjustment: the car can not be adjusted left and right.



Upper edge of headlamp
Lower edge of headlamp
Headlamp adjusting screw

Combined rear position lamp

1. Outline drawing

2. How it works

The combined rear position lamp integrates the functions of tail lamp and brake lamp. The light of the tail lamp and brake lamp is red, the tail lamp/brake lamp bead is a double filament bead, the low power bead is used for the tail lamp, and the high power bead is used for the brake lamp.

3. Parameters

Rear position lamp bead specification: LED 0.24W;

Brake light bead specification: LED 1.2W.

4. Possible failures

Lamp bead failure;

Loose lamp holder;

Lamp line open circuit or short circuit;

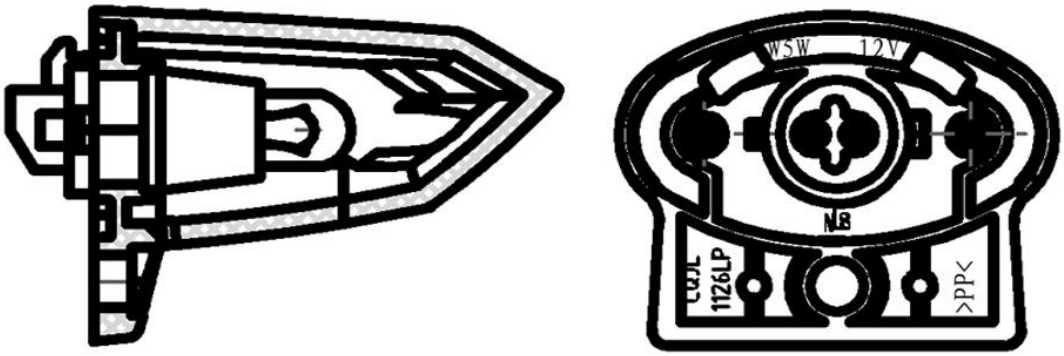
Water or dust in the lamp;

Scratched or damaged lamp glass;

The reflection block falls off.

License plate signal lamp

1. Outline drawing



2. How it works

The light of the license plate lamp is white, and the light of the license plate lamp is formed by the reflection of the reflecting block through the transparent plexiglass below.

3. Parameters

Specification of license plate lamp bead: LED 0.8W;

4. Possible failures

Lamp bead failure;

Loose circuit board;

Lamp line open circuit or short circuit;

Water or dust in the lamp;

Scratched or damaged lamp glass;

The reflection block falls off.

Turn signal lamp

1. Outline drawing

2. How it works

The turn signal lamp is composed of lamp glass, lamp shell, reflector, lamp holder, handle and lamp bead. The light emitted by the lamp beads is reflected into concentrated light by the reflector, and then scattered into uniform and soft orange light by the lamp glass.

3. Parameters

Specification of turn signal lamp bead: LED2.8W.

4. Possible failures

Lamp bead failure;

Loose lamp holder;

Lamp line open circuit or short circuit;

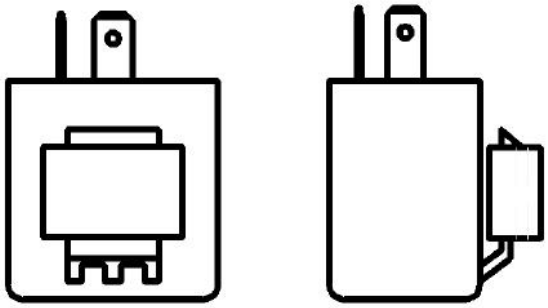
Water or dust in the lamp;

Scratched or damaged lamp glass;

Loose or broken handle.

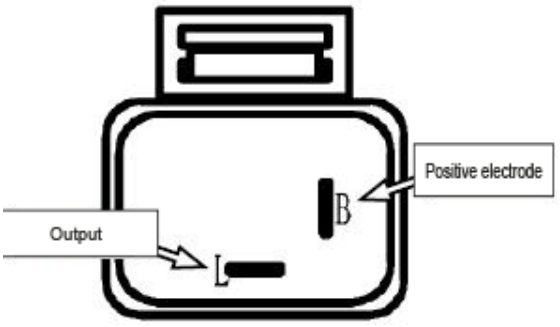
Flasher

1. Outline drawing



2. How it works

The electronic flasher controls the on-off of the high-power FET through an IC chip, and outputs a certain frequency voltage to make the turn signal light up. If a turn signal is disconnected, the flash frequency will be significantly increased. The flasher also has the function of short-circuit self-protection, and beeps when it is protected.

3. Parameters Working voltage: 9-15V, working load: 1-50W Flash frequency of missing light: (90 ± 30) times / min.	
4. Pin function The turn signal cannot be turned on; The interference triggers the relay by mistake and makes knocking sound; The turn signal lamp cannot flash; Short circuit protection is triggered by interference; The relay fails and cannot make knocking sound;	

4. Possible failures

The turn signal cannot be turned on;

The interference triggers the relay by mistake and makes knocking sound;

The turn signal lamp cannot flash;

Short circuit protection is triggered by interference;

The relay fails and cannot make knocking sound;

When one turn signal is disconnected, the flash frequency has no obvious change;

The pin is corroded and cannot be connected.

Front brake light switch

1. Outline drawing

2. How it works

When braking, hold the brake handle tightly, and the contact contacts with the conductive elastic sheet under the action of spring force, so as to connect the circuit, and the brake light is on. Release the brake handle, press the brake handle against the switch guide rod, compress the spring, make the contact leave the conductive spring, the circuit is disconnected, and the brake light goes out.

3. Parameters

The opening stroke of the switch is 2mm and the full stroke is 4mm.

4. Possible failures

The contact and shrapnel are rusted and in poor contact;

The switch is stuck and the guide rod can not act;

The leading out insert is broken or rusted.

Rear brake switch

1. Outline drawing

2. How it works

The pull rod of the rear brake light switch is connected with the brake pedal through the spring. When the brake pedal is pressed, the brake pull rod moves downward, and the contact also moves down. It contacts with the two-contact shrapnel at the same time. When the circuit is connected, the brake light is on; When the brake pedal is released, the brake pull rod moves upward under the elastic force of the return spring, so that the contact is separated from the two-contact shrapnel, the circuit is disconnected, and the brake light goes out.

3. Parameters

The on stroke of the switch is 2.5mm and the full stroke is 6mm.

4. Possible failures

The contact and shrapnel are rusted and in poor contact;

The switch is stuck, and the pull rod cannot move;

Open circuit or short circuit of outgoing line.

Horn

1. Outline drawing

2. How it works

Working current circuit of horn: positive lug → horn coil → contact → negative lug. After the current passes through the horn coil, the magnetic field generates suction on the armature, which makes the bass diaphragm and the treble diaphragm move at the same time. When the contact is opened, the current is interrupted, and the

electromagnetic force disappears. The diaphragm returns by its own elastic force, the contact is closed again, and the circuit is connected again. The contact clearance can be adjusted by screw to change the vibration frequency of diaphragm, so as to change the sound level.

3. Parameters

Voltage: DC12V, current: 1.5A; Sound pressure level: 105dB

4. Possible failures

Contact ablation;

The contact clearance is too large or too small (can be adjusted and repaired);

Coil short circuit or short circuit;

The leading out insert is broken or rusted

5. Horn adjustment

After the horn works for a long time, the contact arm may deform, causing the contact gap to be too large or too small, making the volume of the horn too small or unable to make sound. At this time, it can be repaired by adjusting the screw. Now loosen the lock nut, turn the screw clockwise or anticlockwise, turn on the power supply of the horn at the same time, adjust until the sound is loudest, and finally lock the nut.

Main fault diagnosis

Failure phenomenon	Possible causes	Solutions:
Headlamp does not light up: The high beam lamp cannot be turned on; The low beam lamp cannot be turned on; None of them can work.	Engine not started;	Start the engine;
	The corresponding fuse is not connected or burnt out:	Connect the fuse or replace it;
	The corresponding switch fails;	Repair or replace the switch;
	Headlamp relay failure;	Replace the headlamp relay;
	Lamp bead failure;	Replace lamp beads;
	Poor connection on the line;	Re plug;
	The relevant lines of the main cable are open circuit.	Repair or replace the main cable.
The headlamp does not turn on reliably	Poor contact of fuse, lamp bead or circuit;	Re connect the poor contact area;
	Headlamp relay failure.	Replace the headlamp relay.
Position light does not work: The front position light is not on; The tail light doesn't work; None of them can work.	The corresponding fuse is not connected or burnt out:	Connect the fuse or replace it;
	Lamp bead failure;	Replace lamp beads;
	Poor connection on the line;	Re plug;
	The relevant lines of the main cable are open circuit.	Repair or replace the main cable.
Turn signal lamp does not turn on: The front steering lamp cannot be turned on; The rear turn signal lamp cannot be turned on; None of them can work.	The battery voltage is too low;	Charge the battery;
	The corresponding fuse is not connected or burnt out:	Connect the fuse or replace it;
	The left turn signal switch fails;	Repair or replace the left switch;
	Failure of right turn signal switch;	Repair or replace the right switch;
	Flasher failure;	Replace flasher
	Lamp bead failure;	Replace lamp beads;
	Poor connection on the line;	Re plug;
	The relevant lines of the main cable are open circuit.	Repair or replace the main cable.
Brake light does not light up	The corresponding fuse is not connected or burnt out:	Connect the fuse or replace it;
	Failure of front brake light switch;	Replace the front brake light switch on;
	Failure of rear brake light switch;	Adjust and replace the rear brake light on;
	Lamp bead failure;	Replace lamp beads;
	Line fault.	Inspection and maintenance.

The horn does not sound.	The corresponding fuse is not connected or burnt out:	Connect the fuse or replace it;
	Failure of horn button;	Repair or replace the left switch;
	Horn failure;	Adjust or replace the horn;
	Poor connection on the line;	Re plug;
	The relevant lines of the main cable are open circuit.	Repair or replace the main cable.

Information display system

Summary	Main components
Circuit diagram	Main fault diagnosis
Parts layout	

Summary

The information display system displays the static and dynamic information of the whole vehicle through the instrument panel, and provides it to the driver to guide the driver to operate safely.

Instrument assembly

Outline drawing