

RT48Q-2

Monarch

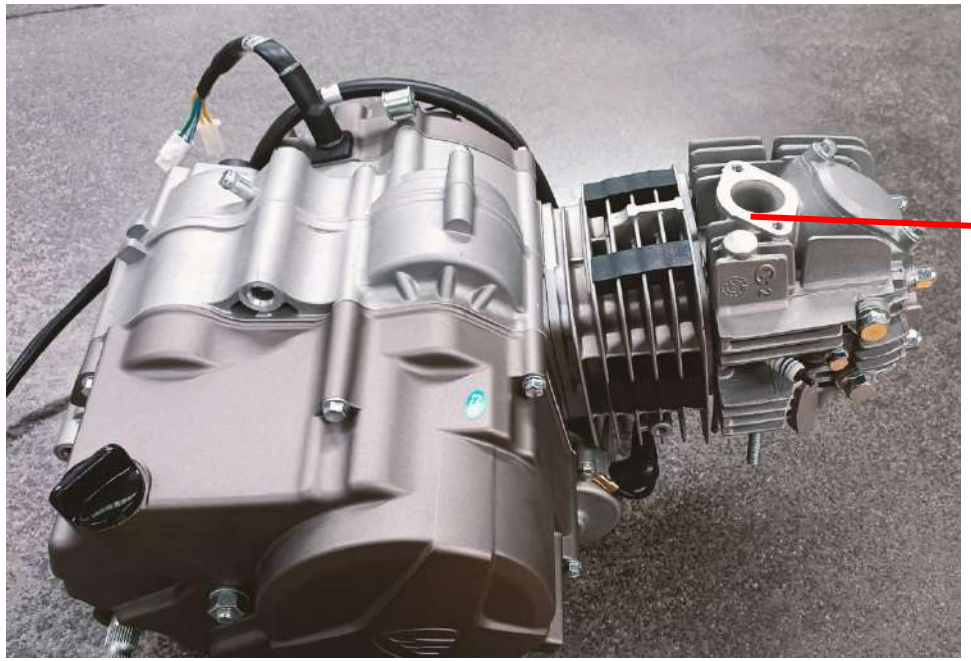
Vehicle Identification Number (VIN) 车架打刻	Engine Number 发动机打刻号
	

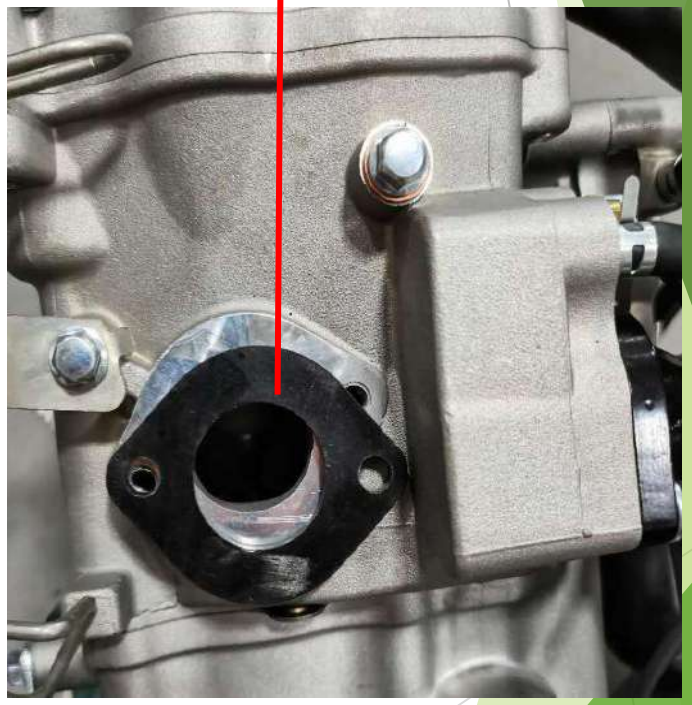
Technical Specifications 技术规格

Dimensions	
Length × Width × Height 长宽高	1910*650*1080mm
Distance between axis 轴间距离	1240mm
Ground clearance 离地间隙	130mm
Distance from seat to ground 座位到地面的距离	830mm
Curb weight (total mass of a vehicle with standard equipment and all necessary operating consumables such as motor oil, transmission oil, brake fluid, coolant, air conditioning refrigerant, and full tank of fuel, while not loaded with either passengers or cargo) 整车整备质量（车辆总重量，包括标准设备和所有必要运行消耗品，如机油、变速箱油、刹车油、冷却剂、空调制冷剂、满箱燃油，不载乘客货物）	93 Kg
Gross weight (Curb weight + maximum payload of passengers and cargo) 毛重（整车整备质量+最大可载荷量的乘客和货物的重量）	233 Kg
Maximum weight capacity 最大承重	150 Kg
Fuel tank capacity 油箱容量	3.5L

Engine 发动机	
Type 类型	RW135FMA
Cooling system 冷却系统	Oil cooling
Bore × stroke 孔径×行程	35×49.54mm
Displacement 排量	48ml
Compression ratio 压缩比	8.9：1
Maximum power 最大功率	1.8Kw/8000rpm
Maximum torque 最大扭矩	2.5N.m/6000rpm
Fuel system 燃油系统	Electronic injection
Air filter type 空滤器类型	Self priming
Start System 启动系统	Electric
Ignition system 点火系统	Ignition advance angle mode
Ignition advance 点火提前量	12°
Spark plug 火花塞	A7RTC_带电阻
Lubrication system 润滑系统	Pressure lubrication
Idle speed 怠速	1500±150 rpm
Spark plug gap 火花塞间隙	0.6-0.7 mm
Engine Oil 发动机油	
Type 类型	Synthetic oil
Viscosity 粘度	10W-40
Capacity (how much oil to put in the engine) When Refilling 加注时容量（在发动机中放多少机油）。	1.2L
Capacity (how much oil to put in the engine) When engine dismantling 发动机放油时放多少油量	1L
Transmission 传动装置	
Clutch type 离合器类型	Multi plate wet clutch
Transmission type 传动类型	Chain drive
Chain type 链条类型	Drive chain
1st	3.273
2nd	1.938
3rd	1.238
4th	0.958

Removal, Maintenance and Installation

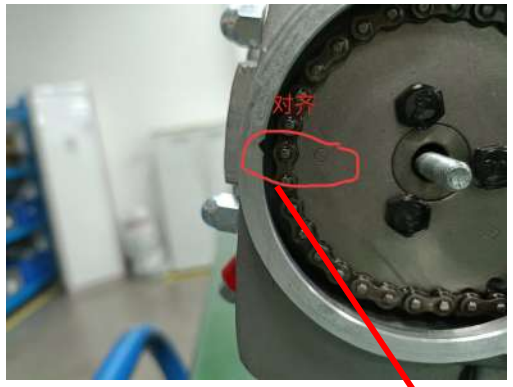




Remove inlet tube and gasket with "T" sleeve, inspect them and O-ring for damage and breakage, replace if necessary. (2 bolts: M6x32, tightening torque :8~12 N · m)

Removal, Maintenance and Installation

Check and adjust the valve clearance



Mark alignment

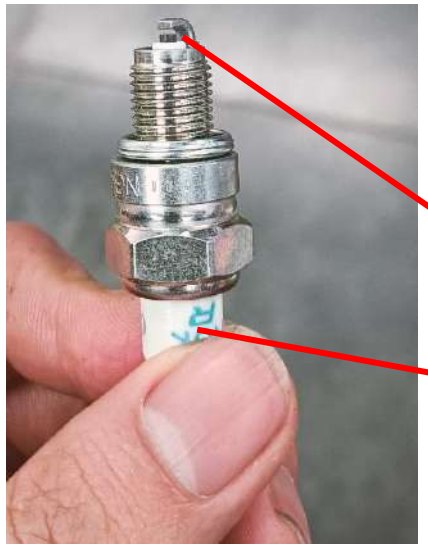


Valve cover fastening bolt

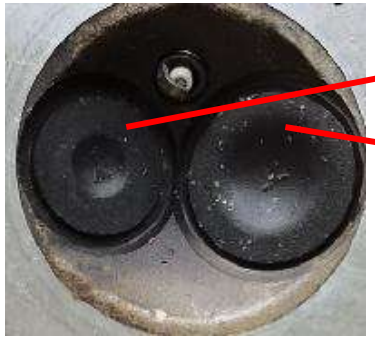
Valve cover

Turn the crankshaft so that the sprocket O mark is aligned with the cylinder head mark, then remove the valve cover to check the valve clearance (standard 0.03-0.05mm). If the nut fails to meet the requirements, use a 9mm wrench to tighten the nut to a torque of 8-12 N.m.

Removal, Maintenance and Installation



Remove the spark plug to check whether the spark plug is abnormal, the gap between the center electrode and the side electrode is 0.6-0.8 (adjustable), whether the ceramic is damaged, damaged replacement.



Remove the cylinder head, check whether the intake valve and exhaust valve leak, grind the valve and cage sealing surface or replace it according to the actual situation. Check the combustion chamber for carbon accumulation and remove or replace the cylinder head if necessary.

Removal, Maintenance and Installation



The front edge of the second convex hull is aligned with the slot of the sight hole cover



Cylinder head notch aligned with sprocket "o"

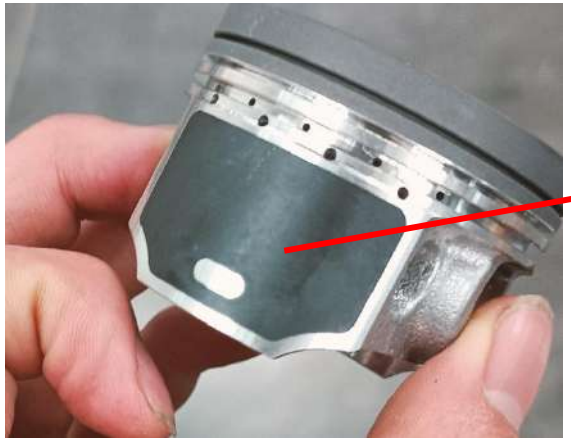
Timing check:

1. Use the 14mmT sleeve to turn the crankshaft counterclockwise, and align the front end of the second convex shell with the slot of the sight hole cover to confirm the cylinder head

Whether the notch is aligned with the sprocket "o" point. Alignment means correct timing. (If the "o" in the 180° direction is in the opposite direction, the crankshaft is rotating once to confirm)

2, cylinder head notch and sprocket "o" point alignment indicates correct timing

Removal, Maintenance and Installation

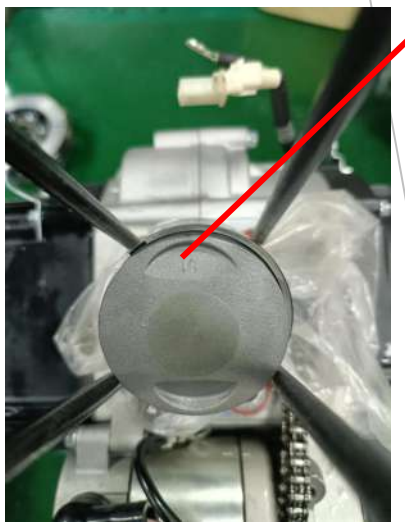


Piston skirt



The piston ring has the face up

IN marks towards the intake air



Piston inspection replacement:
1, check the piston skirt for serious strain, there is a replacement piston
2, piston ring assembly Note: piston ring face up. 3, piston assembly IN the direction of intake.

Removal, Maintenance and Installation



Apply appropriate amount of oil to the group of piston assembly, and ensure 180° for the opening of the first ring and the second ring as far as possible (not opposite).



Apply proper amount of oil to the inner hole of cylinder block before assembly

Cylinder bore

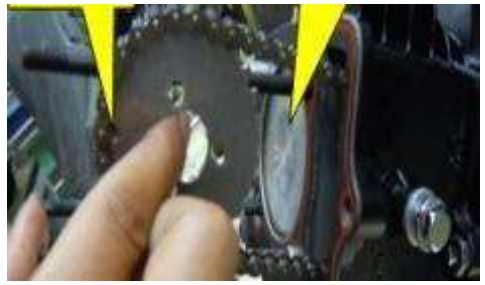


First tighten the cylinder block link bolt

Cylinder body inspection and replacement

1. Apply appropriate amount of oil to the group of piston assembly, and ensure 180° for the opening of the first ring and the second ring as far as possible (not opposite).
2. Apply appropriate amount of oil to the inner hole of the cylinder body
3, after the cylinder assembly, first tighten the cylinder block link bolt, torque 8-12N

Removal, Maintenance and Installation



Sprocket "o" is basically located at the center line of the chain



The timing bolts need to be pre installed by hand before assembly



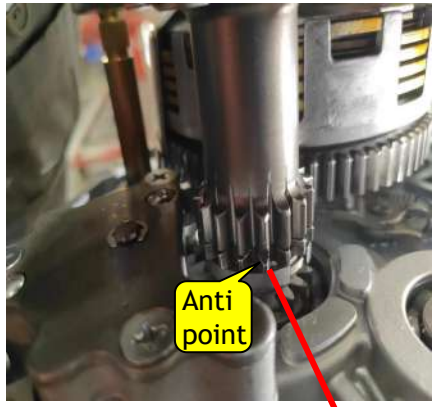
Tighten the cylinder head and cylinder block connecting bolts again with a wrench

Cylinder head assembly:

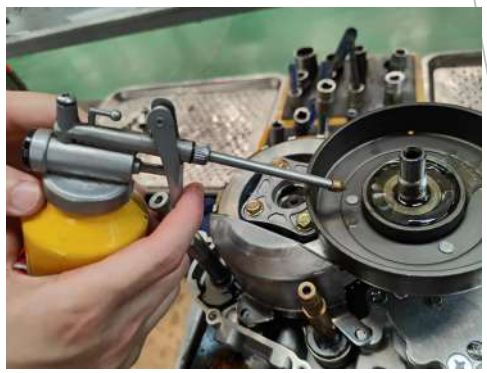
1. Pay attention to the piston being at the top dead center during assembly (rotate the crankshaft counterclockwise through a 14mm T-shaped sleeve),Make the highest point at the top of the piston the top dead center. After assembling the timing sprocket, ensure that "o" is basically at the centerline position of the chain
2. The timing bolts need to be pre installed by hand before tightening
3. After tightening the cap nut, use a wrench to tighten the cylinder block and cylinder head connecting bolts, with a torque of 8-12N

Removal, Maintenance and Installation











Primary clutch pair teeth alignment

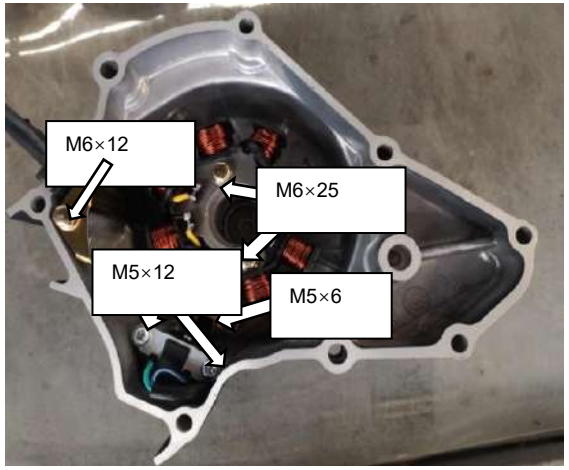
Pay attention to the flat surface of the end cover facing downwards and combining it with the paper pad

Adding oil to the one-way drive

Clutch assembly:

1. Primary and secondary assembly at the same time, after assembly, the primary secondary teeth need to be aligned with point
2. Tightening torque3. After tightening the cap nut, use a wrench to tighten the cylinder block and cylinder head connecting bolts, with a torque of 8-12N

Removal, Maintenance and Installation



Assembly of magneto coils:

1. **Coil screw: 2-M6 × 25; M6 × 12:Cross slot small pan head screw: 2-M5 × 12, M5 × 6:**
2. **M6 bolt torque 8-12N, M5 bolt torque 5-9N**

Troubleshooting

Description	Damage Form	Part Trouble	Motorcycle Trouble
Carbon deposits in the combustion chamber	Too much carbon deposits in the combustion chamber or around the spark plug	Cool engine is hard to start, and hot engine blasts and vibrate heavily	Clear away
Damaged thread hole of spark plug	Air leaks from the seal of spark plug and cylinder head	Engine fails or is hard to start	Repair the thread hole or replace the cylinder head
Remarks Poor clutch separation	Wear or erosion of friction plates	Stuck shifting, slipping, weak rear wheels	Adjusting or replacing the clutch
Severe wear of valve guide hole	Due to the eccentricity of the valve seat ring, the valve leaks air	The engine is difficult to start and the idle speed is unstable	Replacing the cylinder head
Cylinder bolt locking nut not tightened	Air leakage between cylinder and cylinder head	Engine malfunction or difficulty starting. Insufficient engine power. Unstable idle speed	Tighten the locking nut

Description	Damage Form	Part Trouble	Motorcycle Trouble	Remedy
	Damaged O-ring and paper gasket	Oil leaks from sealing part	/	Replace the O-ring and paper gasket
	Improper gap between electrodes	Weak or no spark	Engine fails or is hard to start. Engine lacks power. Unstable idle speed	Adjust by slightly bend the side electrode till gap is 0.6~0.8 mm

Description	Damage Form	Part Trouble	Motorcycle Trouble	Remedy
	Electrodes are joint by carbon deposits	Weak or no spark	Engine fails to start	Clear away carbon deposits between electrodes
	Too much carbon deposits or oil dirties on the spark plug	Weak or no spark	Engine fails or is hard to start. Engine lacks power. Unstable idle speed	Clear away carbon deposits or oil dirties
	Damaged spark plug insulator	Weak or no spark	Engine fails or is hard to start. Engine lacks power. Unstable idle speed	Replace the spark plug with the same model

Description	Damage Form	Part Trouble	Motorcycle Trouble	Remedy
	Damaged spark plug insulator	Weak or no spark	Engine fails or is hard to start. Engine lacks power. Unstable idle speed	Replace the spark plug with the same model
	Negative electrode of spark plug breaks	No spark	Engine fails to start	Replace the spark plug
	Small valve gap	Valve not tightly closed, bent by piston, damaged or even penetrated during preheating process	Engine malfunction or difficulty starting. Insufficient engine power. Unstable idle speed.	Adjust the gap to the specified value
	Big valve gap		Knocking sound in the cylinder head	Adjust the gap to the specified value

Description	Damage Form	Part Trouble	Motorcycle Trouble	Remedy
	Severe deformation or scratches on the end face of the cylinder block	Air or oil leakage between cylinder head and cylinder block	Engine malfunction or difficulty starting. Insufficient engine power. Unstable idle speed	Grind the end face of the cylinder block or replace the cylinder block
	Severe cylinder block wear	Damaged cylinder block, piston, and piston rings, and worn cylinder holes	The engine is difficult to start. Insufficient engine power. Unstable idle speed. The exhaust pipe emits blue or white smoke.	Replace the cylinder block, piston rings, and piston; If the piston pin is sintered, the crankshaft also needs to be replaced
	Excessive wear of the cam	Large valve clearance	The engine lacks power and the valve mechanism emits too much noise	Replacing the camshaft
	Small valve gap	Valve not tightly closed, bent by piston, damaged or even penetrated during preheating process	Engine malfunction or difficulty starting. Insufficient engine power. Unstable idle speed.	Adjust the gap to the specified value
	Big valve gap		Knocking sound in the cylinder head	Adjust the gap to the specified value

Description	Damage Form	Trouble	Remedy
Right cover start shaft oil seal	damage	Oil leaks from the oil seal, and little or no oil is pumped out of the cylinder head. The crankshaft is burnt out.	Replace oil seal
Right cover	It is damaged or broken	Right cover oil leakage	Replace the cover
	Damaged sealing gasket	Oil leakage between the right small cover and the crankcase	Replace the sealing ring
left crankcase cover	damage	Right cover oil leakage	Replace the cover
	Damaged sealing gasket	Oil leakage between the right small cover and the crankcase	Replace the sealing ring
Magneto stator	Scorch	No ignition or charging faults, engine unable to start or abnormal ignition	Replacing the magnet stator

CHASIS | FRAME BODY

Motorcycle Identification

1)

The vehicle identification number (VIN) is printed on the left side of the middle frame.

2) Nameplate

The nameplate is fixed to the left of the steel plate of the middle frame.



CHASIS | FRAME BODY

Maintenance of Frame

Description	Damage Form	Trouble	Remedy
Frame	Deformed or broken	Off-tracking in running	Correct or replace
Center stand	Deformed or broken	Affect the parking	Replace the side stand
	Return spring is damaged	Center stand fails to return and affects the parking	Replace the return spring
	Limit rubber is damaged	Center stand has abnormal noises when folding	Replace the limit rubber
Side stand	Deformed or broken	Affect the parking	Replace the side stand
	Return spring is damaged	Side stand fails to return and affects the parking	Replace the return spring
Covering parts	Broken	Affect the appearance	Replace or repair the covering parts
Fender	Damaged	Affect the fending	Replace the fender
Seat	Broken	Decrease the riding comfort	Replace the seat
Footrest	Deformed or broken	Footrest is deformed or rubber is broken	Correct or replace
Handrail	Broken	Affect the appearance and safety performance	Replace the handrail
Rear-view mirror	Broken	Affect the appearance and safety performance	Replace the rear-view mirror
Fuel tank	Broken or leaking	Affect the safety performance	Replace the fuel tank

CHASIS | FRAME BODY

Maintenance of Frame and Accessories: Removal, Maintenance and Installation

Procedure Step 1 The following shows the framework. Check welds and frames.



Step 2: Check if the rearview mirror is properly fastened and damaged. Tighten or wipe the rearview mirror, and even replace it if necessary.



Step 3: Check if the front mudguard is damaged and replace it if necessary



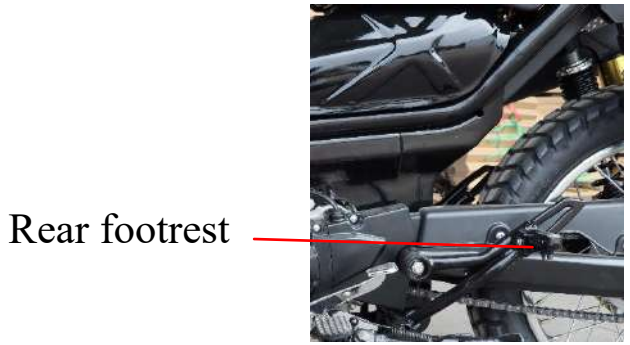
Step 4: Check if the rear mudguard is damaged and replace it if necessary.



CHASIS | FRAME BODY

Maintenance of Frame and Accessories: Removal, Maintenance and Installation

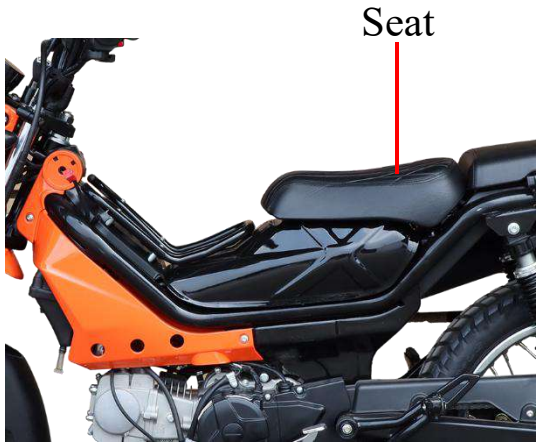
Step 5: Check if the rear footrest is deformed or damaged, and replace it if necessary



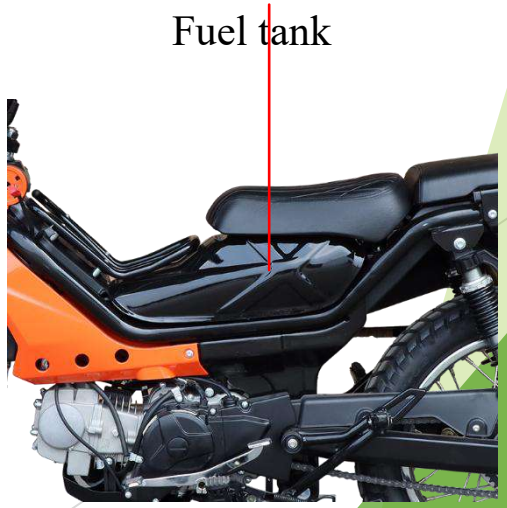
Step 5: Check if the rear footrest is deformed or damaged, and replace it if necessary



Step 6: Check if the seat cushion is broken, and replace it if necessary.



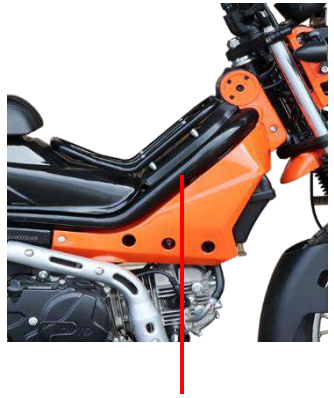
Step 8: Check if the fuel tank is cracked or leaking, and replace it if necessary.



CHASIS | FRAME BODY

Maintenance of Frame and Accessories: Removal, Maintenance and Installation

Step 9: Check if the decorations on the left and right covers of the fuel tank are damaged, and replace them if necessary 。

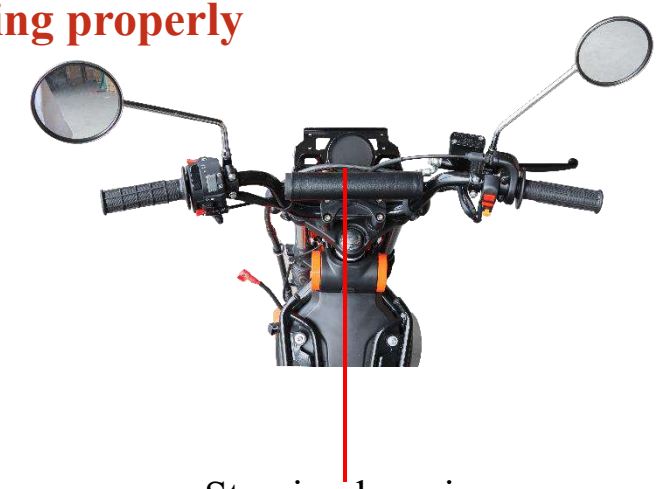


Ornament

CHASIS | SUSPENSION SYSTEM

Removal, Installation, Maintenance of Steering Bar

Step 1: Rotate and check if the steering lever tube is functioning properly



Steering bar pipe

Step 2: If necessary, disassemble the steering system for inspection. (Screw: M8 tightening torque: 18-26N · m)



Step 3: Remove the steering rod tube, check for deformation, and correct or replace it if necessary.



Step 4: Loosen the adjusting nut of the steering lever.



CHASIS | SUSPENSION SYSTEM

Removal, Installation, Maintenance of Steering Bar

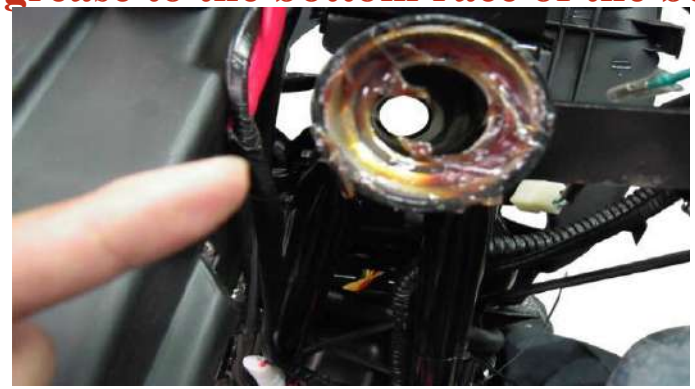
Step 5: Extract the steering rod and check for wear or deformation. If necessary, please replace it.



Step 6: Check the bearing cover and bottom seat ring of the steering rod for wear and replace if necessary.



Step 7: When installing the steering rod, apply a layer of lubricating grease to the bottom race of the bearing.



Step 8 Tighten the suspension shaft of the engine. Suspension bolt M8, tightening torque: (30-40) N.m



Troubleshooting to Steering Stem

Description	Damage Form	Trouble	Remedy
Bearing Bottom Race	Steering stem bolt is too tight	Operation of the steering bar is stiff	Turn the adjusting nut by means of a wrench until the steering stem moves smoothly and easily no radial play between the steering stem and pipe is allowed.
	Excessive wear, pits, indentations, cracks or damage to the ball raceway of the bottom race	Steering bar shakes, vibrates or runs stiffly.	Replace the bearing as a set
Cone-shaped Bearing	The bearing is worn, deformed or damaged	Steering bar shakes, vibrates or runs stiffly.	Replace the ball as a set
Steering Stem	Deformed		Replace the steering stem

Troubleshooting to Engine Suspension

Description	Damage Form	Trouble	Remedy
Engine Suspension	Deformed or damaged	Engine vibrates or rear wheel swings	Replacing the suspension
Engine Front Connecting Plate	Degummed, deformed or damaged	Engine vibrates or rear wheel swings	Replace the front connecting plate
Engine Suspension Shaft	Deformed or broken	Engine falls off or rear wheel swings	Replacing the suspension axle
Engine Suspension Shaft II	Deformed or broken	Engine falls off or rear wheel swings	Replacing suspension axle II

CHASIS | FRONT SUSPENSION

Removal, Installation, Maintenance of Front Shock Absorber

Step 1: Unscrew the bolts of the front shock absorber.



Step 2: Remove the mounting bolts from the front hydraulic brake caliper.



Step 3: Unscrew the fastening nut from the front axle. (Nut: M12 × 1.25, tightening torque: 40-55N · m)



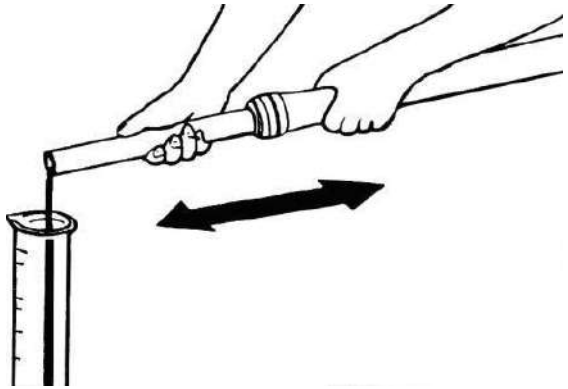
Step 4: Pull out the front axle to remove the front wheel. (Front axle bolt: M14 * 1.5 * 49)



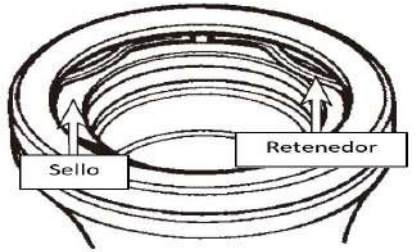
CHASIS | FRONT SUSPENSION

Removal, Installation, Maintenance of Front Shock Absorber

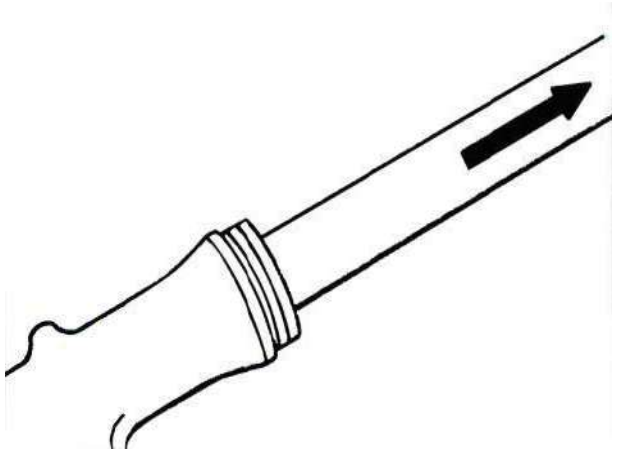
Step 5: Remove the upper screw from the shock absorber. Remove the oil drain bolt on the shock absorber to drain the oil. Attention: Please use new oil when refueling



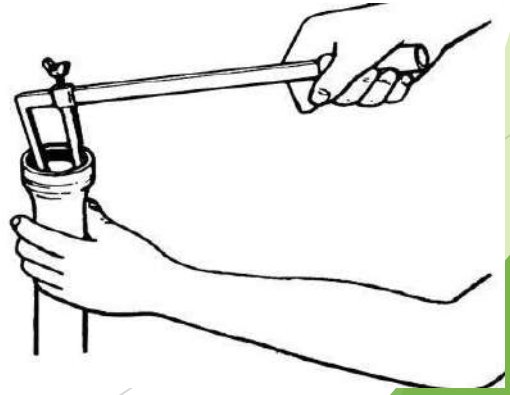
Step 6: Remove the oil seal and retainer. Attention: When reinstalling, please use a retainer and a new sealing ring



Step 7: Remove the dust cover and snap ring from the shock absorber, and then take out the bottom shell.



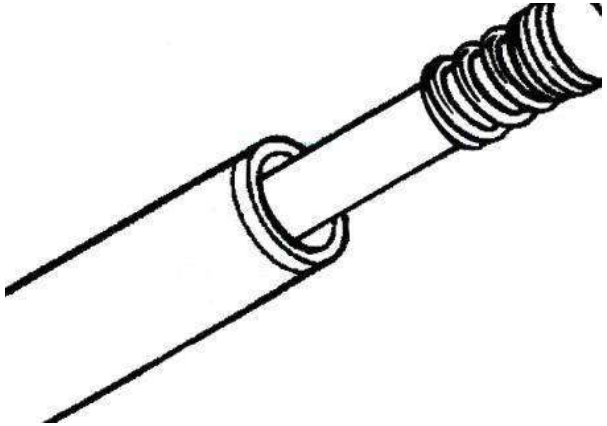
Step 8: Measure the inner diameter of the shock absorber outer tube, if it exceeds the limit value φ 31 (+0.04,+0.08), please replace the outer tube.



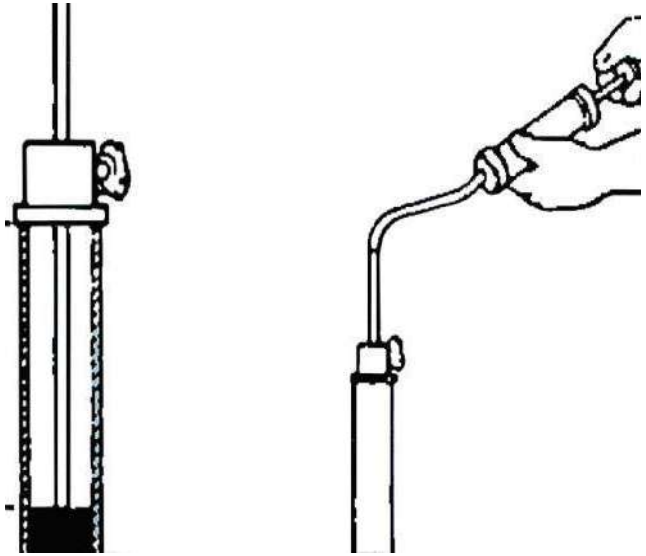
CHASIS | FRONT SUSPENSION

Removal, Installation, Maintenance of Front Shock Absorber

Step 9: Extract and check the wear of the buffer spring, and replace it if necessary.



Step 10:将大约93±2毫升阻尼油（推荐）倒入管中。



Troubleshooting to Front Shock Absorber

Description	Damage Form	Trouble	Remedy
Spring	Spring is weak or broken	Front shock absorber is too weak or has abnormal sound coming from the bottom case.	Replace the spring
Front Fork Tube	Bending or deformed	Off-tracking in running	Correct or replace the front shock absorber stem
	Working surface is damaged or scratched	Oil leaks from the oil seal	Replace the front tube
	Chromium-plated part is worn to expose the substrate	Oil leaks from the oil seal	Replace the front tube
Bottom Case	Broken, deformed or damaged	Oil leaks from the bottom case	Replace the bottom case
Piston Rod	It is heavily worn or damaged	Front shock absorber is too weak	Replace the piston rings
	Piston rings are heavily worn or damaged	Front shock absorber is too weak	Replace the piston rings
Oil Seal	It is heavily worn, damaged or aged	Oil leaks from the front shock absorber	Replace the oil seal
Damping Oil	Lack of oil	Front shock absorber is too weak	Add damping oil as per the requirement (93 ± 2ml)

CHASIS | REAR SUSPENSION

Removal, Installation, Maintenance of oil tank

Step 1: Open the seat cushion and unscrew the seat cushion fastening nut M6



Step 2: Unscrew the tank bolts



Step 3: Remove the lower oil tank, be careful not to scratch the paint of the oil tank when removing the oil tank, and check the integrity of the oil tank



Troubleshooting to Air Filter

Description	Damage Form	Trouble	Remedy	Remark
Oil tank	Leak oil	The fuel tank port or container leaks	1.Check tank integrity 2.Check the integrity of the sealing ring of the interface	Do not pour water into the oil tank, and apply protective paint when removing the oil tank.
	Inadequate tightness	Unstable fuel supply, tank pressure loss	Replace the tank	Replace the new tank to check air tightness

CHASIS | REAR SUSPENSION

Removal, Installation, Maintenance of air filter

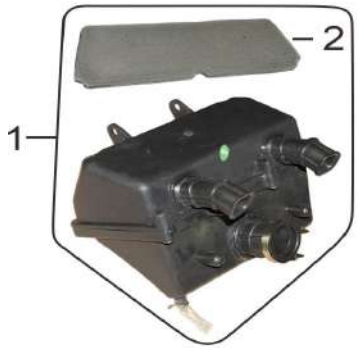
Step 1: Loosen the air baffle fastening nut



Step 2: Use the air gun to loosen the air filter hoop bolt, and then unscrew the two shoulder bolts M6*16 to remove the air filter



Step 3 Check the integrity of the air filter and spray a small amount of oil on the filter



Troubleshooting to Air Filter

Description	Damage Form	Trouble	Remedy	Remark
Air Filter	Too much dust deposits on the element	Engine is hard to start or lacks power. Unstable idle speed, excessive fuel consumption. Thick smoke from the exhaust pipe.	1.Remove the air filter element; 2.Immerse and clean the element in the cleansing agent, and dry it; then immerse it in the engine oil SAE15W/40-SE until it becomes saturated, squeeze the extra oil; 3.Assemble the element and cover reverse to the disassembling order.	Never use water, gasoline or low flash point solvents
	Element is broken	Too loud noises from the air inlets	Replace the element	

CHASIS | REAR SUSPENSION

Removal, Installation, Maintenance of Rear Shock Absorber

Step 1 Unscrew the rear shock absorber fastening nut M10*40 and remove the shock absorber



Step 2 Check the integrity of shock absorption



Troubleshooting to Rear Suspension

Description	Damage Form	Trouble	Remedy
Rear Shock Absorber	Spring is weak or broken	Rear shock absorber is too weak or stiff	Replace the spring
	Leaking	Rear shock absorber is too weak	Replace the rear shock absorber
	Piston rod is bent, deformed or broken	Rear shock absorber is too stiff	Replace the rear shock absorber
Lower Mounting Holder, RH	Deformed	Off-tracking in running	Correct or replace
	Cracked	Motorcycle fails to run	Replace
	Bearing is broken	Motorcycle fails to run	Replace

CHASIS | FRONT AND REAR WHEELS

Removal, Installation, Maintenance

Step 1: Unscrew the mounting bolt M8*38 from the front hydraulic brake caliper.



Step 2: Unscrew the fastening nut from the front axle. (Nut :M12, tightening torque :40 ~ 55N·m)



Step 3: Remove the front axle to remove the front wheel. Remove and check the front shaft bushing for wear and replace if necessary.



Step 4 Loosen and check whether the mounting bolts on the front disk are worn, and replace them if necessary. (Screw M8, tightening torque :20-32 N · m)



CHASIS | FRONT AND REAR WHEELS

Removal, Installation, Maintenance

Step 8: Check if the tire exceeds its usage limit and replace it if necessary.



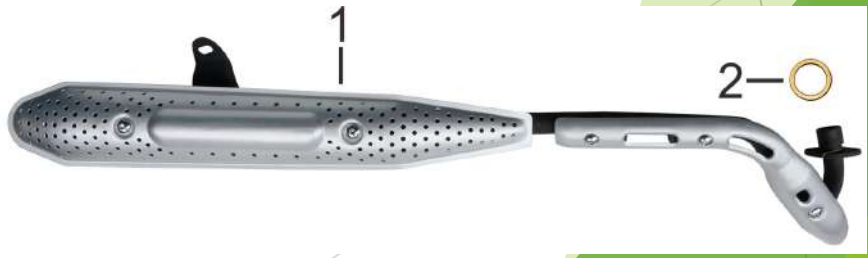
Step 5: Unscrew the cap nut M8*19 from the front end of the muffler.



Step 6: Unscrew the mounting bolt from the rear end of the muffler.



Step 19: Shake the muffler to check whether the muffler has abnormal sound, and replace it if necessary.



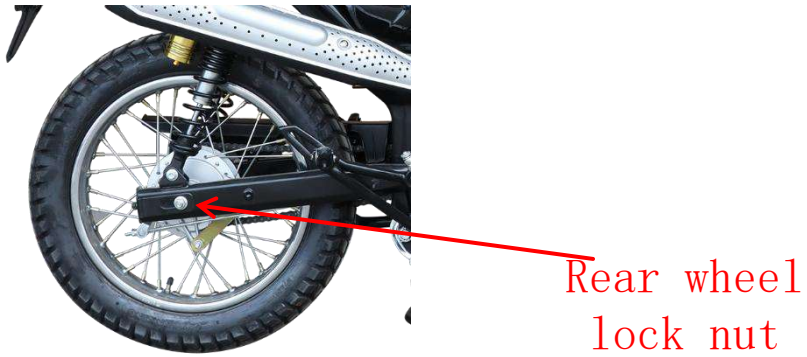
Troubleshooting to Muffler

Description	Damage Form	Trouble	Remedy	Remark
Muffler Gasket	Gasket is broken	Loud noises from the exhaust pipe	Replace the gasket	Replace the gasket after each disassembly
Exhaust Muffler	Muffler housing or mounting stay is broken	Loud noises from the exhaust pipe	Replace the exhaust muffler	
	Internal parts are falling off and loose	Abnormal sound from the internal exhaust muffler	Replace the exhaust muffler	
	Carbon deposits in the exhaust pipe	Engine performance descends	Clear away carbon deposits in the exhaust pipe with genuine cleansing solvent	

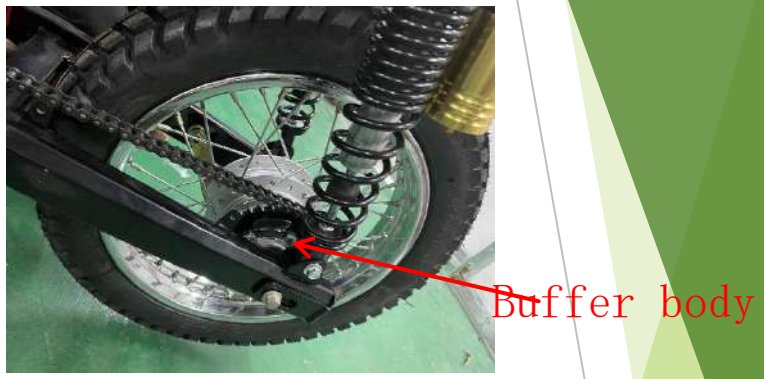
CHASIS | FRONT AND REAR WHEELS

Removal, Installation, Maintenance

Step 1 Tighten the nut after being unscrewed with an air wrench. The M14 torque value of the fastening nut for the rear axle must be (60-80) N.m



Step 21 Pull out the rear axle and remove the rear wheel.



Step 2: Unscrew the rear brake connection bolt



Troubleshooting to Front and Rear Wheels

Description	Damage Form	Trouble	Remedy
Front Wheel	Speed sensor is worn	Odometer fails to work	Replace the speed sensor
	Front axle oil seal is worn	Too much dust in the front axle oil seal	Replace the oil seal
	Front axle bearing is worn	Front wheel vibrates severely or has abnormal noises	Replace the front axle bearing
	Poor braking performance	Braking effect of front hydraulic brake is weak	Empty air in the front hydraulic brake
Rear Wheel	Oil seal on the lower right mounting stay of the rear shock absorber is worn	Too much dust in the oil seal	Replace the oil seal
	Bearing on the lower right mounting stay of the rear shock absorber	Rear wheel vibrates severely or has abnormal noises	Replace the bearing
	Poor braking performance	Braking effect of rear hydraulic brake is weak	Empty air in the rear hydraulic brake
Front & Rear Hydraulic Brake	Front and rear brake discs are worn	Poor braking performance	Replace the front and rear brake discs

ELECTRICAL COMPONENTS AND METER

Configuration of electrical components on the vehicle

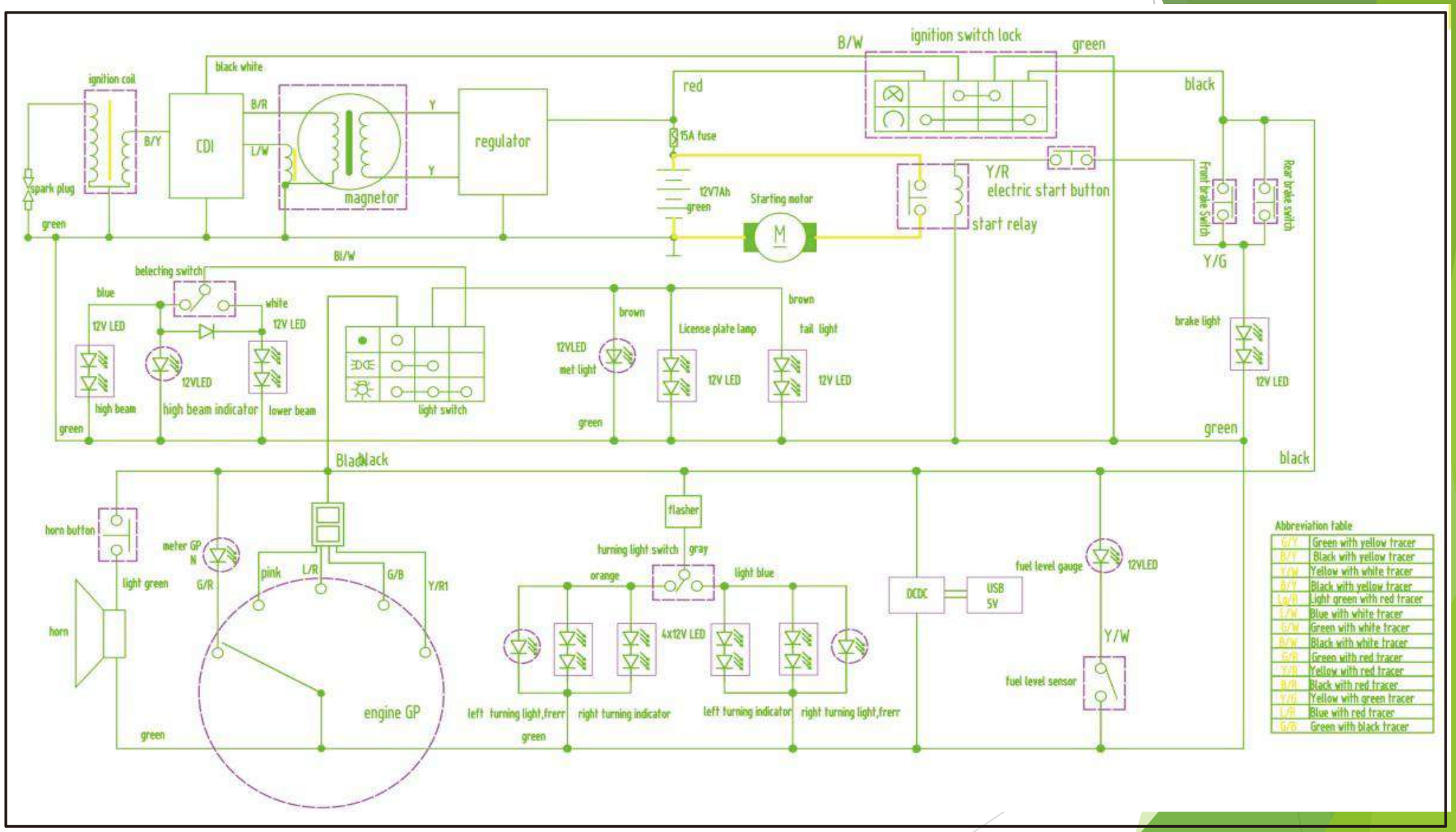


ELECTRICAL COMPONENTS AND METER

Configuration of electrical components on the vehicle



ELECTRICAL PRINCIPLE DIAGRAM



ELECTRICAL COMPONENTS AND METER

Charging System

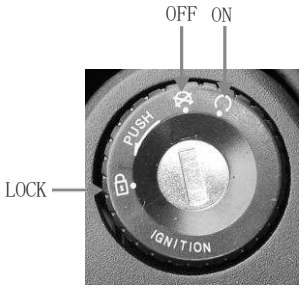
The charging system includes:
1) Battery (12 v9ah)
2) A magneto (permanent magnet AC generator) is divided into a magneto rotor and a magneto stator (including charging/lighting coils and trigger coils).
3) On/off controller: a special voltage regulation method.

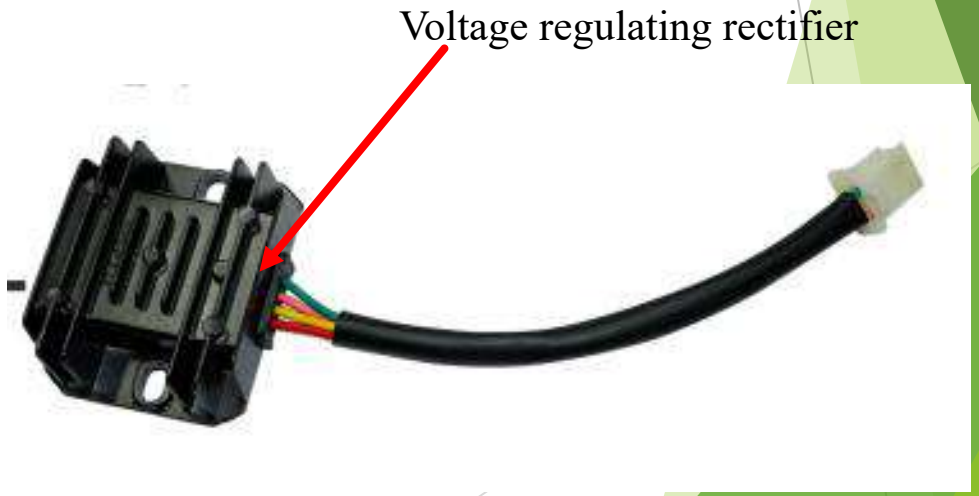
●The function of the charging system: When the generator generates sufficient electricity, the charging system not only supplies power to the electrical equipment on the vehicle, but also charges the battery to store some electricity, ensuring power supply in case of low speed or heavy load of the generator leading to insufficient power.

●Disconnect the connectors of the switch controller, main cable, and magneto, check for short circuits, open circuits, or poor contact, and repair or replace the switch controller if necessary.

●Removal, Installation and Maintenance of Charging System

Turn the key from ⊗ to ↻ and open the ignition switch.





ELECTRICAL COMPONENTS AND METER

Charging System

The charging voltage of the switch controller is between 13V and 15V. If the switch controller malfunctions and the voltage is below 13V, please replace it with a new switch controller.
Disconnect the coupling between the switch controller and the magneto charging/lighting coil; Check for short circuits, open circuits, and poor contact in the charging/lighting coils, and if necessary, handle or replace them.



For the magneto rotor, use a multimeter to measure the no-load voltage between the two leads of the charging/lighting coil (i.e. any two of the yellow, blue, and green lines). When the engine speed varies within the range of 1500 r/min to 8000 r/min, the normal value of no-load voltage should be within the range of 20 ± 5v to 100 ± 20v.
The higher the speed, the higher the voltage. If the charging coil is short circuited, disconnected, or connected to a metal casing, the no-load voltage will differ significantly from the normal value

Remove the flywheel from the magneto rotor and check if the rotor is demagnetized. If necessary, please replace it.



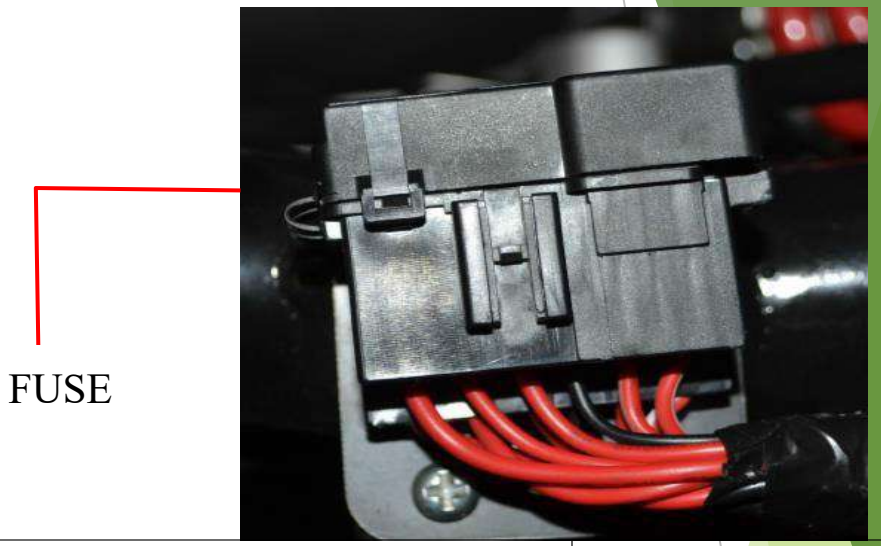
If the no-load voltage value differs significantly from the normal value, replace the stator of the magnetic motor



ELECTRICAL COMPONENTS AND METER

Charging System

Test the battery voltage, if it is below 12V, charge the battery.
Check if the fuse is faulty and replace it with a fuse of the same model if necessary. It is prohibited to use any object or method other than a fuse to connect the motorcycle circuit, or directly connect it without using a fuse, otherwise it may cause the risk of burning the motorcycle.



Troubleshooting to Charging System

Part	Damage Form	Trouble	Remedy
Magneto	Short-circuit to the charging coil	No output voltage or voltage is low. Battery is undercharged.	Replace the charging coil
	Break-circuit to the charging coil (resistance is ∞)	No output voltage, battery power is insufficient or the electric components are out of work.	Replace the charging coil
On-off Controller	Damaged regulating function	Battery is undercharged, deformed or recharging current is too high.	Replace the on-off controller
Battery	Damaged battery	Magneto fails to run, whole vehicle has no power supply.	Replace the battery
	Shortage of electrolyte due to long-term storage	Magneto fails to run or runs slowly, signal system is out of work.	Charge to the battery or replace the battery

ELECTRICAL COMPONENTS AND METER

Trigger system

Part	Major components and explanation	Mounting position and description
Ignition Coil	Induced ignition coil	On the vehicle
Magneto	Include 36-2 teeth magnetic steel, coil and speed sensor	On the engine
Spark Plug	Spark plug type: CPR8EA-9, NGK Standard contact clearance value: 0.7~1mm	On the engine

ELECTRICAL COMPONENTS AND METER

Ignition System

The ignition system includes:

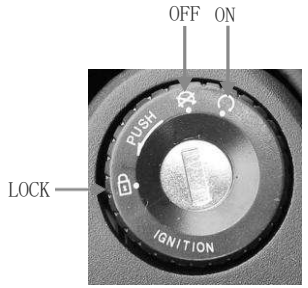
Magneto and trigger coil: The flywheel of the magneto rotor is an external convex platform, and the trigger coil is an external triggering type. Electronic control units and other system components refer to 4.2 Electronic Fuel Injection System.

Ignition coil: Inductive energy storage type, which is the basic component that converts the low voltage output of the igniter into the required high voltage.

Spark plug: Please refer to the operating manual for type and contact gap.

Removal, Installation and Maintenance of Ignition System

Turn the key from  to , open the ignition switch to check the ignition system.



Disassemble and inspect the spark plug cap, and replace it if necessary. The gap between the spark plug cap is 0.7-1mm。



The standard contact clearance for spark plugs can be found in the operating manual.



ELECTRICAL COMPONENTS AND METER

Ignition System

Check the coupling between the trigger coil of the magneto and the main cable, and repair or replace it if necessary.



The B/W line and G/W line in the magneto lead coupler are triggering coils, which should be repaired or replaced if necessary.



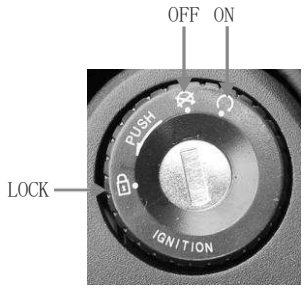
Troubleshooting to Ignition System

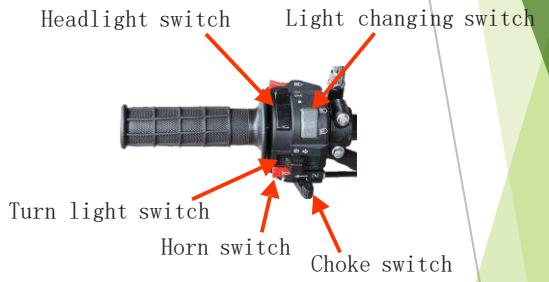
Parts	Damage Form	Trouble	Remedy
Ignition Power Supply	Break-circuit, short-circuit or poor contact	No spark or weak spark	Repair
Trigger Coil	Short-circuit	Engine is hard or fails to start. Engine power decreases. Unstable idle speed.	Replace the trigger coil
	Break-circuit (resistance is ∞)	Engine fails to start	Replace the trigger coil
Ignition/Emergency Switch	Short-circuit	Engine fails to switch off	Replace the faulty switch
	Break-circuit	Engine fails to start	Replace the faulty switch
Ignition Coil	Short-circuit	Engine is hard to start. Engine power decreases. Unstable idle speed.	Replace the ignition coil
	Break-circuit (resistance is ∞)	Engine fails to start	Replace the ignition coil
	Aged insulator	Engine is hard to start. Engine power decreases. Unstable idle speed and creepage.	Replace the ignition coil
Spark Plug	Carbon deposits, creepage or broken insulator	Engine is hard to start. Engine power decreases. Unstable idle speed.	Clear away carbon deposits
	Worn electrode		Adjust the spark plug clearance or replace it with the same model
	Electrode ablation		replace

ELECTRICAL COMPONENTS AND METER

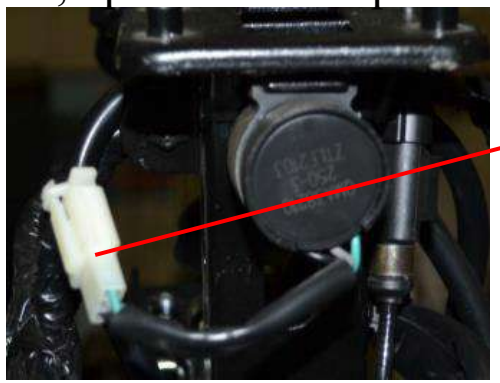
Signal System, Meter and Water Temperature Indicator

The signaling system consists of a left handlebar switch, horn, turn signal, full LED indicator, flasher relay, and LED front profile light (located in the headlight assembly). LED tail light assembly. (LED brake light, LED rear light), front and rear brake switch, fuel sensor, instrument assembly. Speed sensor, Removal, Installation and Maintenance of Signal System Turn the key from to, open the ignition switch to check the signal system.

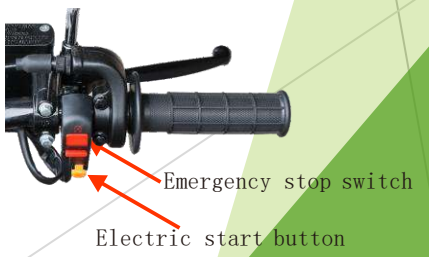




Disconnect the connector of the flasher relay from the main cable, check for short circuit, open circuit or poor contact, and repair or replace if necessary.



COUPLER OF FLASHER RELAY TO MAIN CABLE

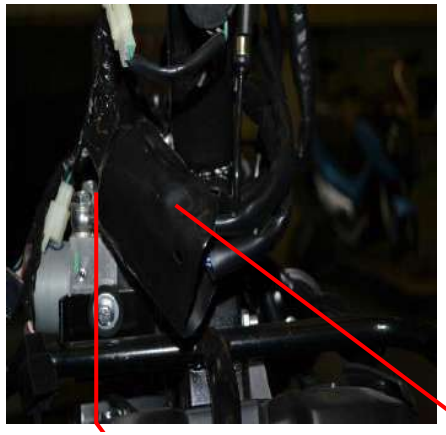


ELECTRICAL COMPONENTS AND METER

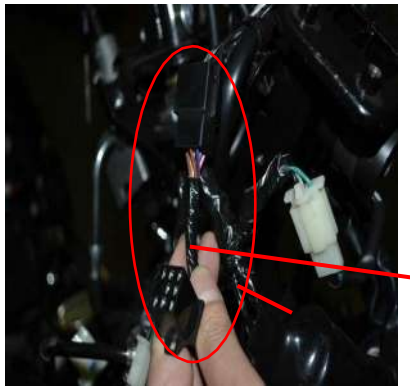
Signal System, Meter and Water Temperature Indicator

Open the headlight cover; Disconnect the connectors between the car handle switch, front turn signal, ignition switch, and main cable, and check for short circuits, open circuits, and poor contact; Otherwise, remove or dismantle the interior of the handlebar switch for inspection

Short circuit, open circuit, and poor contact, repair or replace as necessary.



COUPLER OF 12V POWER SOCKET, USB CHARGER TO MAIN CABLE



COUPLER OF METER TO MAIN CABLE

COUPLERS OF LEFT & RIGHT HANDLEBAR SWITCH, FRONT WINKER, HEADLIGHT TO MAIN CABLE



MOUNTING SCREW OF LEFT HANDLEBAR SWITCH



INTERNAL DIAGRAM OF LEFT HANDLEBAR SWITCH AFTER DISASSEMBLY



COUPLER OF LED FRONT POSITION LIGHT, LED HEADLIGHT

Connector between tail lights and main cable in left and right rear panels



Remove the screws of rear trunk, rear fender, rear right panel, check or replace the taillight.

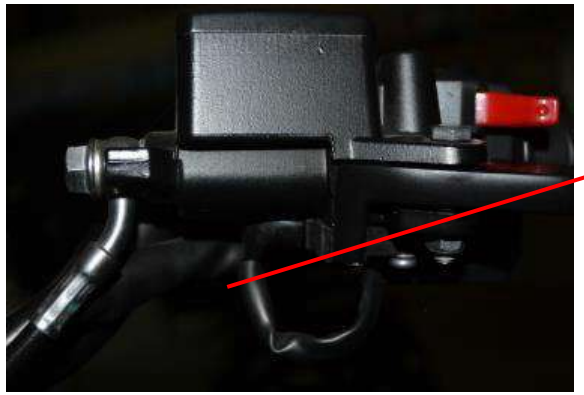
ELECTRICAL COMPONENTS AND METER

Signal System, Meter and Water Temperature Indicator

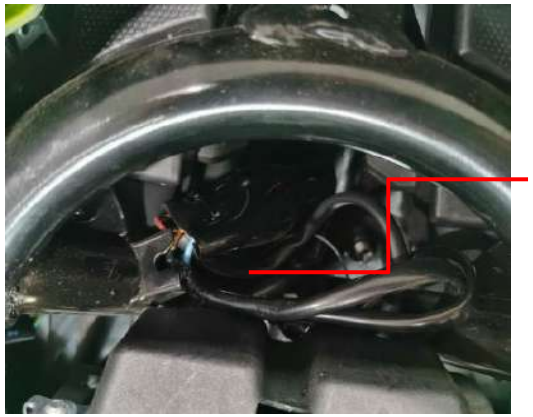
Check the connectors from the front/rear brake switch to the main cable and the front/rear brake switch for short circuit, open circuit and poor contact, and repair or replace if necessary.



COUPLER OF FRONT BRAKE SWITCH TO MAIN CABLE



COUPLER OF REAR BRAKE SWITCH TO MAIN CABLE



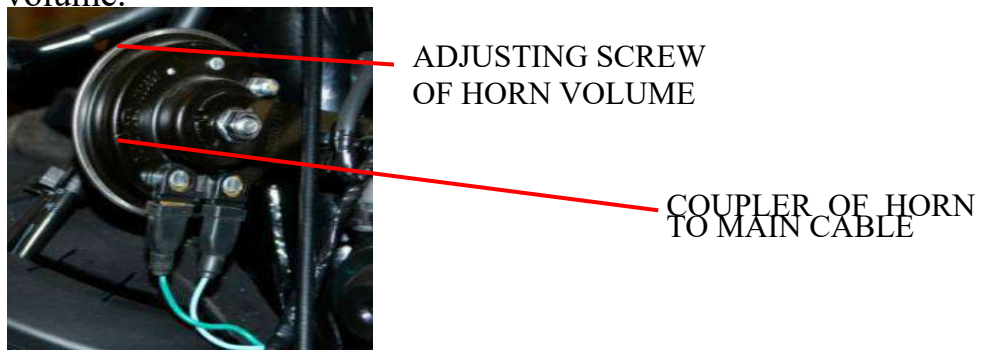
Left rear/right rear turn signal and license plate light to main cable socket box in packaging 。

ELECTRICAL COMPONENTS AND METER

Signal System, Meter and Water Temperature Indicator

The inspection method for the front and rear direction indicator lights is the same.Check the connector from the speaker to the main cable, the handlebar switch, and the speaker button

Short circuit, open circuit or poor contact, repair or replace as necessary. If the speaker is mute or the sound is weak, turn the adjustment screw to adjust the speaker volume.



METER COUPLER (IN THE FRONT FAIRING)



Check the connectors between the main cable and the instrument panel, fuel sensor, headlights and taillights, as well as the connectors between the speed sensor and the main cable for short circuits, open circuits, and poor contact. If necessary, repair or replace the connectors with the same model. When the float of the fuel sensor is at its two operating limits, the reading of the fuel gauge is as follows (connected to LF150T-8): at point E (highest oil level), 5 LCD bars light up; At point F (minimum fuel)Horizontally, 1 LCD bar flashes. The float changes between point F and point E, so the fuel gauge stabilizes between 1 and 5 bars. When operating the left/right turn signal or high beam lights on the left handlebar switch, the left/right turn signal or high beam lights will light up accordingly. When the overtaking button is pressed, the high beam lights and the indicator lights on the instrument panel will light up simultaneously.

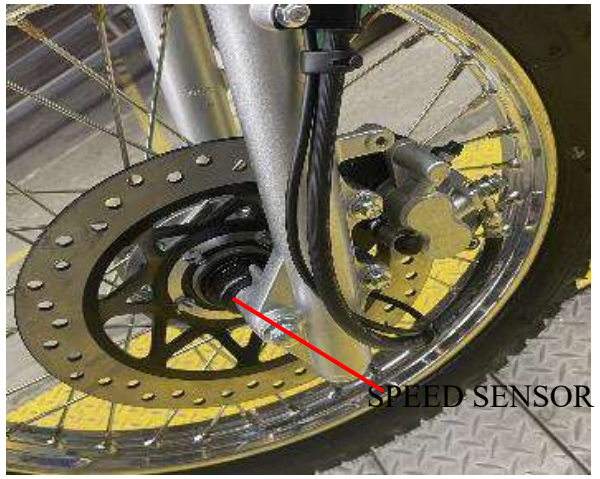


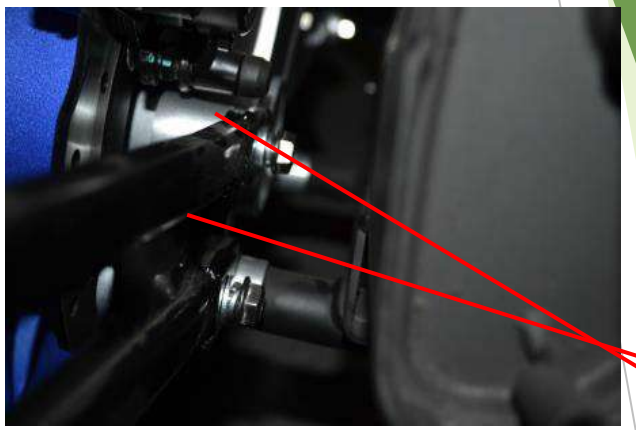
Meter

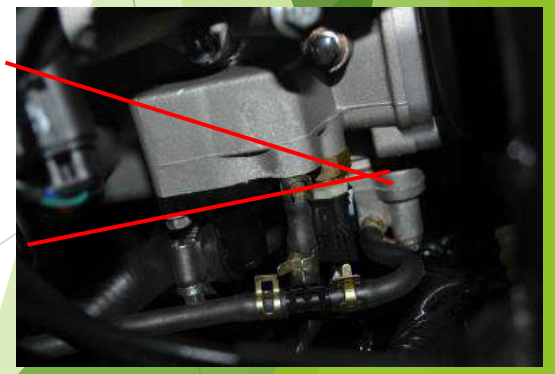
Ser. No.	Name	Description
①	Speedometer	In km/h
②	Turn indicator	The left indicator is lit up when the turnlight switch is to the left and the right one lit up as the latter to the right.
③	High beam indicator	It is lit up when the high beam switch is on.
④	Neutral indicator	It is lit up when in the neutral position
⑤	Fuel indicating light	When the fuel is about 0.7L, the fuel indicator light is on; refueling is needed. Do not overfill fuel to avoid fuel leakage in drive.
⑥	Odometer	It shows the total accumulated mileage already covered by the vehicle.
⑦	Gear position display	
⑧	Tachometer	It shows the speed (rpm) of the engine.



The odometer is equipped with an electronic speed sensor whose output signal is a 12-volt square-wave pulse with a frequency of 425.5 Hz。







Speed sensor is electronic type and meter is full-electronic type. Speedometer and odometer indicate current driving speed and accumulative mileage respectively. They are driven by front wheel.

If the speedometer, odometer or tachometer malfunctions or the meter does not function properly, first check the speed sensor, replace it if it is abnormal; then remove and check the meter for short-circuit, break-circuit and poor contact, if the circuit is normal, the meter should be replaced

Troubleshooting to Signal System

Parts	Damage Form	Trouble	Remedy
Winker	External damage	Out of work	Replace
Indicators	Damage of internal meter	LED indicators are out of work	Replace the meter
Turn Signal Switch	Poor contact, broken wire or damage of internal circuit	Winker is out of work or can't light normally	Repair or replace the turn signal switch
Flasher Relay	Internal damage	Winker is out of work or does not twinkle	Replace
Front/Rear Brake Switch	Poor contact of internal circuit or damaged component	Brake light keeps on or fails to work	Replace the brake switch
Taillight/Brake Light	Internal damage	LED taillight/brake light is out of work	Replace the taillight
Front Position Light	Internal damage	LED front position light is out of work or is dim	Replace the headlight
Horn Button	Internal poor contact, break-circuit or damage	Horn is dumb or sound is abnormal	Repair or replace the horn button
Horn	Internal break-circuit or damage	Horn is dumb or sound is abnormal	Replace
Fuel Sensor	Internal damage	Fuel gauge display is abnormal	Replace
Speed Sensor	Internal damage	Speedometer/odometer display is abnormal	Replace with the same model
Meter Cable	Break, break-circuit, short-circuit or poor contact of cable	Lighting and signal indicating system fail to work normally	Replace

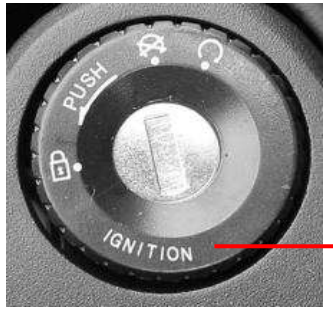
ELECTRICAL COMPONENTS AND METER

Lighting System

Lighting system includes left/right handlebar switch, headlight (LED high beam and low beam, LED front position light), and license plate light, etc.

● Removal, Installation and Maintenance of Lighting system

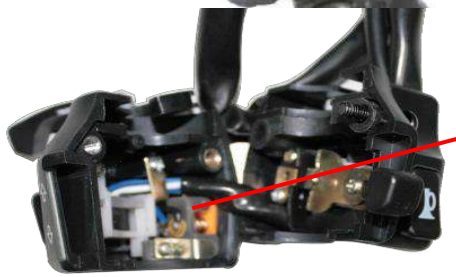
Turn the key from ⊗ to ○ , open the ignition switch to check the lighting system.



IGNITION SWITCH



MOUNTING SCREW OF LEFT HANDLEBAR SW.



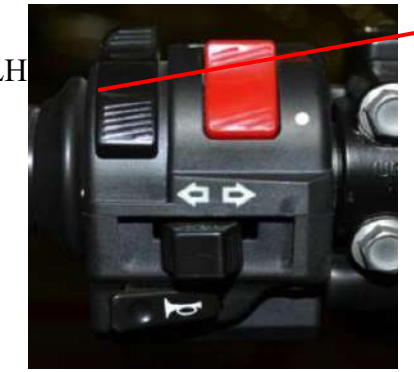
INTERNAL DIAGRAM OF LEFT HANDLEBAR SWITCH AFTER DISASSEMBLY

HANDLEBAR SW., RH



LIGHTING SW.

HANDLEBAR SW., LH



DIMMER SW.

ELECTRICAL COMPONENTS AND METER

Lighting System

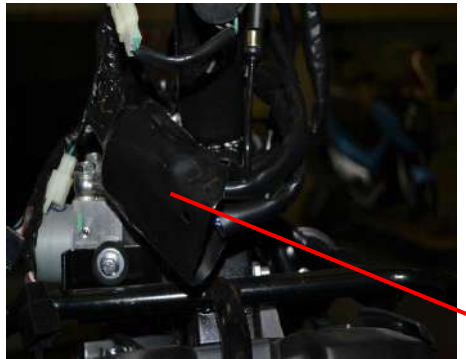
Coupler of rear license plate light to main cable is under the tail of rear trunk, remove the rear trunk and loosen the fixing bolt of rear fender stand to check or replace the rear license plate light.





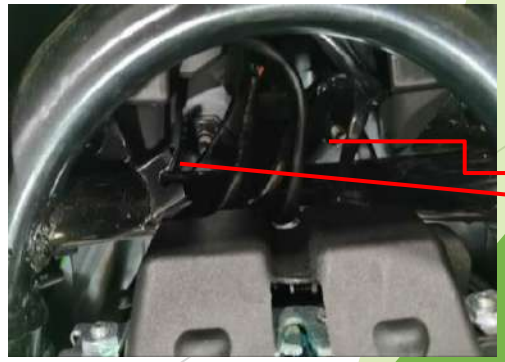
Socket box of rear left/right winker and license plate light to main cable is in the package.

Open the headlight hood; disconnect the couplers of handlebar switch to main cable or disassemble the interior of handlebar switch; check them for short-circuit, break-circuit and poor contact, repair or replace if necessary.



COUPLER OF LEFT/RIGHT HANDLEBAR SWITCH, HEADLIGHT TO MAIN CABLE

COUPLER OF TAILLIGHT TO MAIN CABLE IN THE LEFT & RIGHT REAR PANEL



FIXING BOLT OF REAR FENDER STAND

ELECTRICAL COMPONENTS AND METER

Lighting System

Check the couplers of left/right handlebar switch, rear license plate light, ignition switch to main cable, and the coupler of left/right handlebar switch to headlight for reliable connection, short-circuit, break-circuit and poor contact, repair or replace them if necessary.

If necessary, disassemble the rear license plate light, check the bulb, replace it with the same model if it is damaged. When LED high beam and low beam in the headlight cannot work normally, it needs to disassemble the covering parts and replace the headlight.

If necessary, disassemble the left/right handlebar switch, check the interior for short-circuit, break-circuit, poor contact and damage, repair or replace them if necessary.

Check the interior of main cable and ignition switch for short-circuit, break-circuit, poor contact and damage, repair or replace them if necessary.

Check the coupler of ignition switch to main cable for short-circuit, break-circuit and poor contact, repair or replace it if necessary.

Troubleshooting to Lighting System

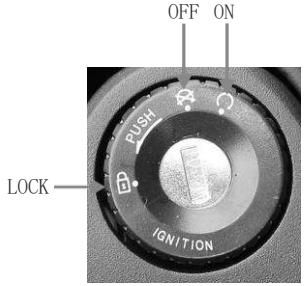
Parts	Damage Form	Trouble	Remedy
Headlight	Adjusting bolt of light height is loose	Light beam is improper (too close or too far)	Adjust and tighten the bolt
	Damage of interna circuit or l element	LED high/low beam or front position light fail to illuminate normally or	Replace the headlight with the same model
License Plate Light	Damage of internal circuit or element	Bulb fails to work	Replace the license plate light with the same model
Lightning Switch/ Dimmer Switch	Poor contact, break or damage of internal circuit	Bulb fails to work or brightness is abnormal	Repair or replace the lighting switch/dimmer switch

ELECTRICAL COMPONENTS AND METER

Electric Starting System

Electric starting system includes starting motor, starting relay, emergency switch, electric start switch (on the right handlebar sw
clutch switch, gear switch, diode, main cable ground wire, battery and blade fuse.

Removal, Installation and Maintenance of Electric Starting System
Turn the key from ⊗ to ↻ , open the ignition switch and turn the emergency switch to ↻, check the electric starting system.







ELECTRICAL COMPONENTS AND METER

Electric Starting System



Check the couplers of ignition switch, electric start switch (on the right handlebar switch), on-off controller, engine case (main cable ground wire) to main cable and their circuit for reliable connection, short-circuit, break-circuit and poor contact, repair or replace them if necessary.

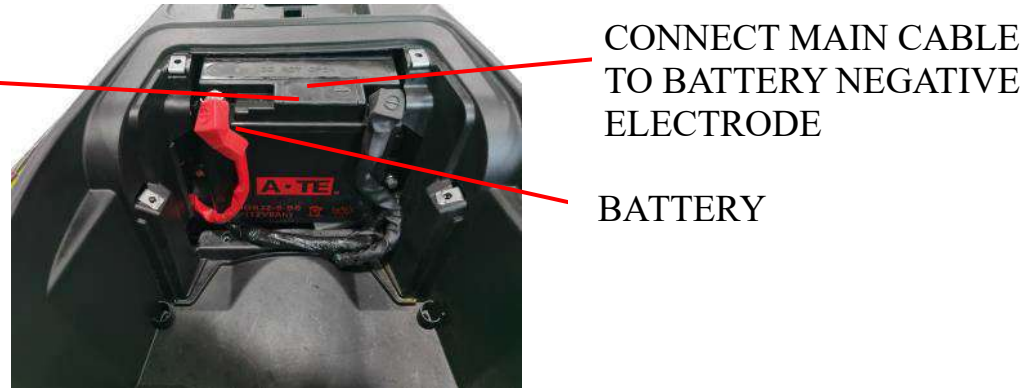
There is only one way to start electrically, when the ignition switch is on, hold the brake handle (front or rear brake switch) and press the electric start switch.

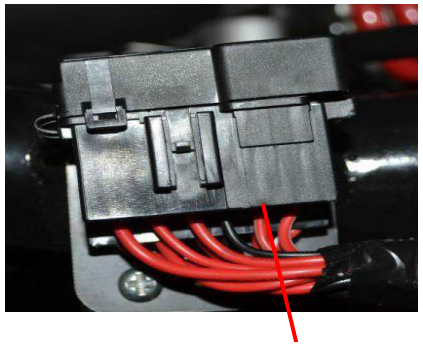
Troubleshooting to Electric Starting System

Parts	Damage Form	Trouble	Remedy
On-off Controller	Short-circuit or break-circuit of internal coil	Motorcycle fails to start electrically	Replace the starting relay
	Damage of interior	Motorcycle fails to start electrically	Replace the starting relay
Switches	Poor connection or contact of interior	Motorcycle fails to start	Replace the faulty switch
Battery	No voltage or low voltage	Motorcycle fails to start	Check the battery for proper function. Repair or replace the battery

ELECTRICAL COMPONENTS AND METER

Battery and Fuse





Measure the battery voltage, if it is below 12V, charge the battery timely.

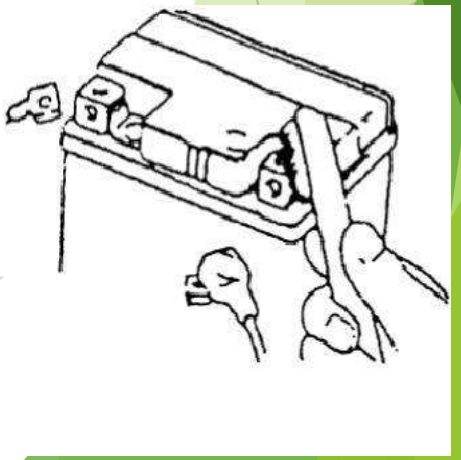
Check the fuse for malfunction, replace it with the same model if necessary. It is forbidden to use any object or method other than a fuse to turn on the motorcycle circuit, or to directly connect without using a fuse, otherwise it will cause a risk of burning the motorcycle.

Battery (12V4Ah)： is of maintenance-free type.

Battery Maintenance

(1)Battery (12V4Ah): is of maintenance-free type. The electrolyte has been filled in the sealed case by the manufacturer before leaving the factory, thus fundamentally eliminating the inconvenience of acid leakage and need for frequent refilling of electrolyte or distilled water, which is common in ordinary lead-acid batteries. If the vehicle is idle for a long term, the battery will discharge itself resulting in insufficient capacity, which must be charged once every three months; after 2~3 years of normal use, the battery capacity will also decline and must be supplemented to restore the voltage.

(2)It is not required to check or supplement electrolyte because it is of maintenance-free type, but remember never remove the sealed electrolyte cover. If the vehicle is not used for a long time, remove the battery and store it in a cool and ventilated place after charging.



ELECTRICAL COMPONENTS AND METER

Battery Maintenance

(3) Clean of battery terminals: turn off the ignition switch, remove the left side cover and battery press plate to take out the battery and disconnect positive cable and negative cable from it, then clean the battery terminals with wire brush as shown in the right picture. This done, apply the terminals with a thin layer of grease or petrolatum. At last, connect the battery cables in reverse order of removal.

NOTE: When disassembling, remove the negative terminal of the battery first. Connection should be done in the reverse order of removal.

Replacement of Fuse

(1)Before checking and replacing the fuse, the ignition switch should be placed in " " position to prevent accidental short-circuit."

(2)Remove the left side cover. The fuse is the fuse box, open it to check the fuse for tightness or replace it if necessary.

(3)If the circuit burns out frequently, there is probably an overload circuit or short-circuit. The cause should be found and troubleshooting before normal use.

(4)The fuse must be replaced with the same model as specified. Never use lead wire to take the place of fuse.

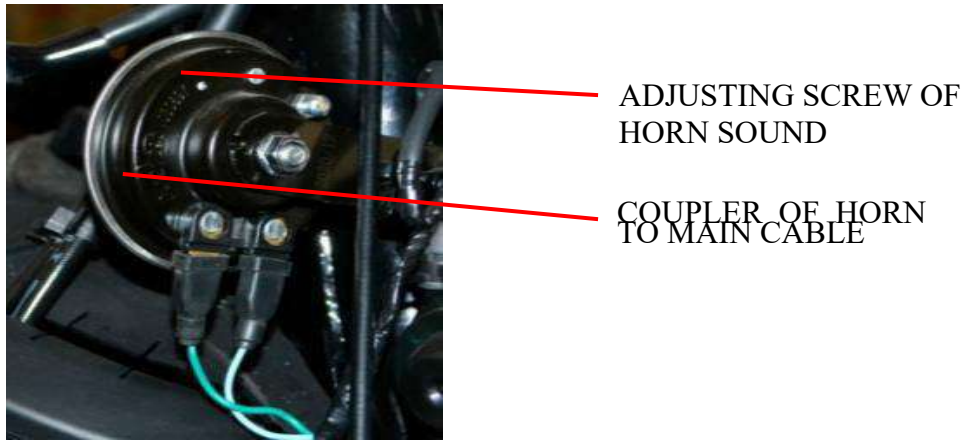
WARNING: It is forbidden to use any object or method other than a fuse to turn on the motorcycle circuit, or to directly connect without using a fuse, otherwise it will cause a risk of burning the motorcycle.

(5)Reinstall t in the reverse order of removal and make sure the fuse holder clamp is tight.

ELECTRICAL COMPONENTS AND METER

Electric Horn| Check the Function of Electric Horn:

Turn the main switch to “ ” and press the horn button to check it for sound.
Check the coupler of horn to main cable, and the horn button for short-circuit, break-circuit and poor contact, repair or replace them if necessary. If the horn is dumb or sounds weakly, turn the adjusting screw to adjust the horn volume, replace the damaged horn with a new one of the same model.



A horn without sound is a common fault, which can be divided into two types. One is the circuit failure, and the other is the internal failure of the horn. 1）Circuit Failure

When the horn does not work, first check the fuse, then check the circuit for normal work. If the above problems are excluded, it proves that there is a problem inside the horn.

2）Internal Failure

Nowadays, with the improvement of manufacturer’s horn production technology, safe use frequency of some horns can reach more than 100,000 times, therefore the internal failure is relatively decreasing. However, the common problems are contact ablation, damaged coils and damaged diaphragm, the most common among these is contact ablation, which often has a failure development process, such as no sound, delayed sound, weak sound, discontinuous sound occur or the sound is not crisp and prompt when pressing the horn button. These can be considered as the contact failure.

Structure and maintenance of carburetor system

Introduction to Carburetor System

Definition

化油器摩托车的工作原理主要涉及化油器的功能，即将汽油雾化和与空气混合，形成可燃的混合气体，然后输送到摩托车的各个气缸中。具体步骤如下：

空气进入化油器：外界的空气经过滤清后进入化油器，其进量由阻风门的位置控制。

燃油的吸入和雾化：空气通过化油器内的喉管时产生吸力，这个吸力使得燃油从浮子室通过喷管被吸出并雾化。

燃油和空气的混合：雾化的燃油与空气在化油器内混合，然后通过进气歧管被气缸吸入。混合气的进量由油门踏板控制，它连接化油器内的油门。

浮子室的控制：汽油泵将油泵入浮子室，浮子室内的浮子随着油量的增减而升降。当浮子室内充满汽油时，浮子上浮，通过其针阀将进油口堵住，从而控制进入浮子室的油量。

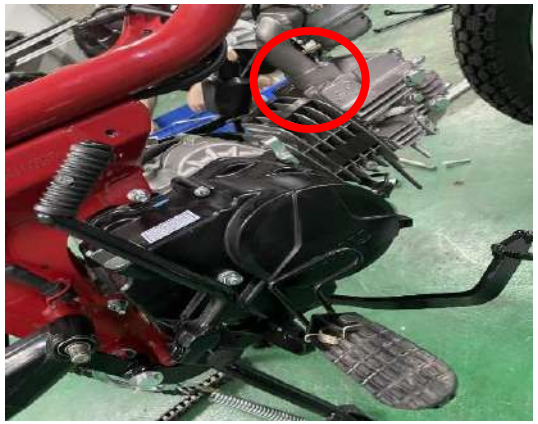
CHASIS | FRONT AND REAR WHEELS

Removal, Installation, Maintenance

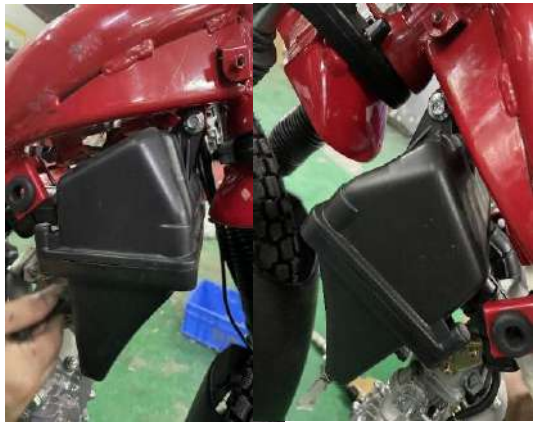
Step 1 Remove the windshield and expose the car



Step 2: Unscrew the carburetor and engine connection bolts



Step 3 Loosen the clamp bolt of the air filter using the air gun. Remove the carburetor



Step 4 Check the integrity of the carburetor



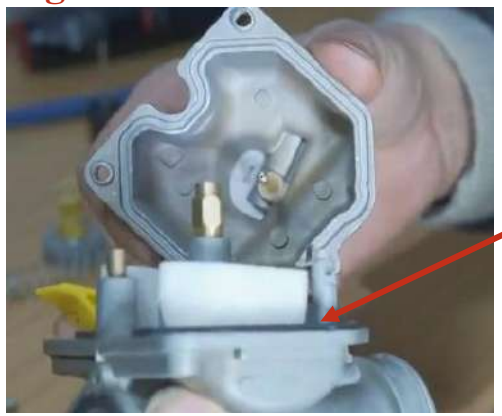
CHASIS | FRONT AND REAR WHEELS

Removal, Installation, Maintenance

Step 1 Adjust the idle nut when the idle speed of the motorcycle is unstable



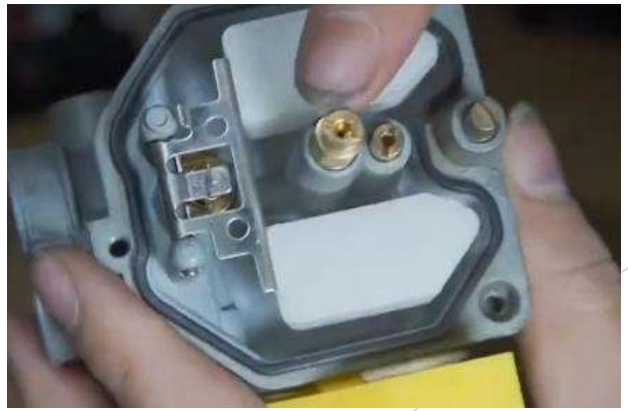
Step 3 Open the carburetor to check the integrity of the carburetor gasket



Step 2: Unscrew the lower cover nut of the carburetor



Step 4 Check the foam tube and idle hole of the carburetor



ELECTRICAL COMPONENTS AND METER

Carburetor System

Parts	Damage Form	Trouble	Remedy
Carburetor	Leak oil	The oil needle is dirty or damaged, the needle valve is not tightly closed, or the gasket is not tightly sealed	Replace corresponding parts
	oil-proof	Oil inlet channel, oil pipe, oil tank cap vent hole, gasoline filter, gasoline pump clogged	Cleaning and replacement
	flooding	Water in carburetor	Loosen the oil drain screw in time to release water, and add fresh gasoline
	The carburetor is blocked	The idle metering hole is blocked	It is recommended to clean the carburetor with a special cleaning agent

Maintenance Schedule

	Maintenance item	保养项目	Project cycle	Odometer km (Note 2)				
				1000km	4000km	8000km	12000km	
*	Circuit of fuel system	燃油系统通路			I	I	I	
*	Fuel filter	燃油过滤器	/	/	/	/	/	/
*	Throttle operating sysem	油门操作系统			I	I	I	
	Air filter element	空滤器滤芯			C	C	C	
	Spark plug	火花塞			I	R	I	
*	Air valve gap	气门间隙		I	I	I	I	
	Engine lubricating oil	发动机润滑油		R	Every 5000km: R			
	Lubricating oil screen	润滑油过滤网		R	Every 5000km: R			
*	Tension of chain	正时链条张紧度			I	I	I	
	Driving chain	传动链		Every 1000km: R				
	Battery	电池		Every 5000km: I				
	Wear of brake shoes	刹车片磨损			I	I	I	
	Rear braking system	后制动系统		I	I	I	I	
* *	Braking liquid hose	制动液软管		It is replaced every four years				
* *	Cup of braking liquid	制动液杯			I	I	I	
* *	Braking liquid	制动液		Replace it every two years				
* *	Front braking system	前制动系统		I	I	I	I	

Maintenance Schedule

*	Rear braking light switch	后制动灯开关		I	I	I	I	
*	Light changing of front illuminator	前照灯调光			I	I	I	
	Clutch	离合器		I	I	I	I	
	Side stand	边站			I	I	I	
*	Suspension	悬架			I	I	I	
*	Nuts, bolts & other fasteners	螺母、螺栓及其他紧固件		Every 5000km: I				
* *	Wheel / spokes	铝轮/辐条		I	I	I	I	
* *	Bearing of steering handle	方向轴承		I	I	I	I	

I: inspection, cleaning, lubrication, adjustment or replacement; C: Cleaning; R: Replace; L: Lubrication. The "*" item is repaired by the personnel of the maintenance station. If the user has special tools, maintenance accessories and maintenance capabilities, you can also repair by yourself, maintenance knowledge can refer to this maintenance manual."**" In order to ensure safety, the item can only be repaired by the personnel of the maintenance station. Note: 1, when driving in dusty areas, it should be cleaned frequently.2, when the odometer reading exceeds the given maximum number.

* ※：Items need more professional skills, tools and parts, only be performed by our maintenance station.

NOTES: ① Clean more frequently when riding in unusual wet or dusty areas;

② At higher odometer readings, still follow the frequency intervals established in this manual.

STORAGE

1.Empty fuel inside the fuel tank, pipes and other passages.

2.Remove the spark plug and pour adequate engine oil 10W/30-SE into the cylinder. Down the side stand and hold the rear brake, then press the electric start button for several seconds to scatter evenly the oil inside the cylinder wall.

3.Lubricate all of the cables, seat lock base.

4.Raise the whole vehicle so that the tires are above the ground.

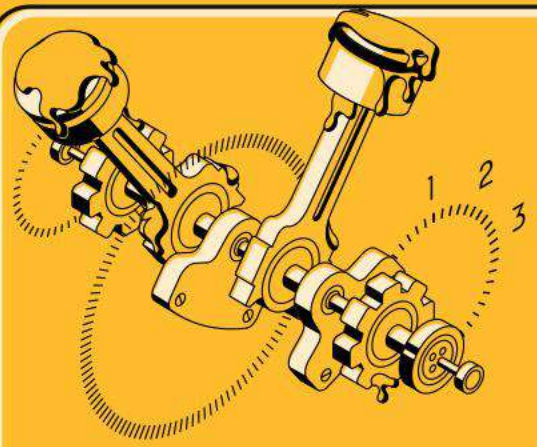
5.Seal the muffler outlet with a plastic bag to prevent moisture from entering.

6.Coat all surfaces of bare metal with a thin layer of rust-resisting oil if the motorcycle is exposed in a humid or salty place.

7.Remove the battery, charge and store it in a cool, dry place. Recharge the battery monthly.

UNPACKING

Place the packed motorcycle on a level ground. Unpack the packing case with a special tool to prevent scratching of the body surfaces. This done, check to see that all parts of the motorcycle are intact and good, and check the allotted tools for completeness.



THE END

