

OWNER'S MANUAL



Important Attention Points

- **Driver and passenger:**

This motorcycle is limited to one driver and one passenger (only children under 12 years old permitted).

Never exceed the max load capacity.

- **Safety: avoid driving the motorcycle in extreme weather and cold weather below -12°C.**

- **Road condition**

Not drive too high speed when road is not in good condition.

- **Please read the user's manual carefully**

You must pay attention on the warning sentence or paragraph.

WARNING

Not following the operation instruction in this manual may cause injury to you and the vehicle.

ATTENTION

Keep this manual as a permanent part, whenever transfer the scooter to a new owner, remember to hand over the manual to him together.

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I Notice for safe driving

Rules for safe driving

1. Many traffic accidents are caused by the inability of car driver to notice the motorcyclist, so the motorcyclist should try his best to be noticed by other drivers.
 - ※Put on the specialized coat in bright color or warning mark.
 - ※Drive with great caution in the place with dazzling light or in blind spot.
2. Particular care should be exercised at the level crossing of roads, entrance and exit of parking lot or on the automobile lane.
3. Never over speed, otherwise accident may occur.
4. You must get the driving license and be familiar with the vehicle. Never lend the vehicle to the man without driving license or who is unfamiliar with motorcycle.
5. Avoid driving on the rough road. This can easily result in operation failure and structural damage to the vehicle frame.
6. Check up before driving. (See page 7)
7. When driving, hold the handle bar and put feet on the footrest.
8. Don't drive too close to other vehicles. Never contend for lane, and strictly observe the local traffic.

Load capacity

- **Warning:**

Only put lightweight goods in luggage box or on the carrier.

The load should not exceed the limit which is stipulated in Table 1:

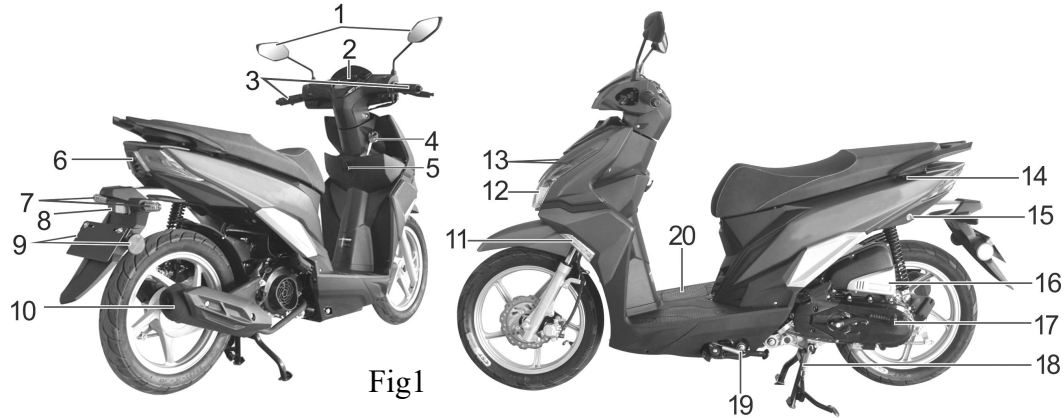
Table 1

Deposited position	Stated Weight (kg)
Carrier	5kg
Luggage Box	5kg

- **The max payload of this motorcycle is 150kg, including the weight of the driver, passenger and goods.**
- **If the motorcycle is over loaded, it will affect the stability and operation of the motorcycle.**
- **Tie all the goods needed to be carried on the motorcycle.**
- **On the rear shelf seats no child allowed.**

II. Various Parts Name and Instruction

Parts & Sub assemblies (Fig1)



1.Rear view mirror

2.Speedometer

3.Front and rear brake

4.Ignition switch

5.Helmet hook

6.Tail light

7.Rear L.& R. turn light

8.Rear reflector

9.Side reflector

10.Muffler

11.Front L.&R. turn light

12.Headlight

13.Daylight

14.Fuel Charger

15.Seat lock

16.Air cleaner

17.Kick starter

18.Center stand

19.Side stand

20.Battery location

Meter and indicator (Fig2)

- (1) Fuel meter: Indicate the fuel volume in the fuel tank.
- (2) Left turning signal ⇐ : Sparking when the button turns left.
- (3) Odometer: Records the total mileage which this scooter has driven.
- (4) Speedometer: show the actual running speed
- (5) High beam indicator : When the button is on position“≡D”,
the high beam indicator works.
- (6) Right turning signal ⇒ : Sparking when the button turns right.
- (7) Fault indicating lamp: When EFI system has functional problem, the lamp
will flash. The flashing frequency and times will help to judge the actual EFI
malfunction type.
- (8) Clock: Shows the current time.
- (9) Adjust the button:

- Press the left button switch fastly, then switch between ODO (total) and TRIP (subtotal)
- Longer press and hold the right button for 3 seconds to reset the subtotal to zero under the TRIP status.
- Time setting: longer press the left button for 3 seconds under ODO mode,the time position will be flash, press the right button to set the number fastly, press 1 time fastly, the number will increase by 1.Press the left button to switch to the flashing position fastly and make the same settings. After completion, Fastly press the left button to save and exit, or automatically save and exit after 10 seconds of no operation.



Fig2

Fuel gauge (Fig2)

- The min. and max. levels are indicated by the letters E and F.
- The fuel reserve gauge is shown by the last segment flashing (r): 1st level: the first (1.1L) segment flashes.

When the tank is full:

- All of the fuel level indicator segments flashes.
- The "🛢️" symbol is displayed.

When the tank is empty:

All the segments on the fuel gauge are off and the "🛢️" symbol flashes.



Fig3-1

Ignition switch (Fig 3-1)

- (1) ON—Power to the electrical circuit is on. The engine can be started. The key cannot be removed.
- (2) OFF—The engine is off. Power to the electrical circuit is off. The key can be removed.
- (3) LOCK—when the switch turns to lock (🔒) position, pull out the key, the handlebar can be locked.



Fig3-2

Steering lock (Fig 3-2)

Power to the electrical circuit is off. The handlebars must be turned to the left, while the key must be simultaneously pushed in and turned to (🔒) position . ,the handlebar will be locked.



Seat lock (Fig 4)

- Insert the key into the key hole , then turn the key clockwise and open the seat.
- Put down the saddle, and press the rear end of it until a clear metal-meshing sound can be heard. Pull up the saddle rear end to make sure it is locked securely, then pull the key out.



Fig4

Power off switch (1)(Fig 5)

When the switch is on “”, the electric starting function can be available;
When the switch is on “”, the electric starting function will be invalid; the scooter will be powered off.

Warning light switch(Fig 5)


When the switch is on “”, double flash lights open;
When the switch is on the right side, double flash lights closed.






Fig5

Electric starting button (2) (Fig 5)


Press this button “” to start the engine.

Headlight dimmer switch 1 (Fig6)



Press “” button, to get high beam; Press “” button, to get low beam;

Press “PASS” button, flashing the lights to pass slower cars .

Horn switch 2 (Fig6)

Press this  switch to make the horn work.

Turning signal light switch 3 (Fig6)

“” means turning left, “” means turning right. Press the switch either to the right or to the left.

To stop the indicators flashing, press the switch.



Fig6

III. Operation Instruction


Check up before driving

The user must personally ensure that his vehicle is in good condition. Certain safety elements may show signs of damage even when the vehicle is not used. E.g. long-time exposure to bad weather can lead to oxidation in the braking system or a pressure drop in the tires which can have serious consequences. In addition to a simple visual inspection, it is extremely important to check before use.

Read the below table carefully and make all the inspections before each riding.

Inspection item	Methods/Standards	Inspection item	Methods/Standards
Handlebar	1-Turn smoothly 2-Not loose ,no excessive clearance	Brake cables	Make a visual check ,add lubricant if necessary
Lighting system	Operate all lights, make sure all of them can function well.	Brake lever pivots	Make a visual check ,add lubricant if necessary
Engine oil level	Make sure engine oil is within the standard level	Main and side stand shafts	Make a visual check ,add lubricant if necessary
Brake system	1-Front and rear brake lever free path 2-No brake fluid leakage	Horn	Press the horn button ,make sure it sounds normally
Throttle cable	1-Suitable free path 2-Turn the throttle grip, make sure the throttle reset is normal	Fuel and fuel hose	1-Check the fuel level ,make sure the left fuel is sufficient for completing the trip 2-Check the fuse hose and vacuum hose
Tire pressure	Check tire pressure within the rated Check the tire thread depth ,tire surface no cut or damage	Bolts/nuts tightening	Check the fastening of crucial components, retighten it if necessary

Gasoline

When  symbol and the last segment flashes, please refill fuel tank. And check whether the tank and the carburetor are in good condition.

- Gasoline tank contains max. 4.5L
- Turn the tank cover anti-clockwise to open the fuel tank .(Fig7)
- Recommended gasoline, octane number is above 90.
- Do not refill fuel doped with water, dust or other impurities.



Fig 7

NOTICE:

- Gasoline is inflammable, it possibly causes fire even exploding under certain condition, refilling is always carried out at well ventilated area after the engine is shut off and cooled down. Keep away from fire when refilling the fuel tank.
- Do not overfill, and prevent fuel from overflowing out of the fuel tank. Lock the fuel cap securely after refilling.
- Gasoline is poisonous, keep children away when refill the fuel tank.

Inspect the engine oil level (Fig8)

1. Place the vehicle on its central stand on flat ground.
2. Start the engine, let it run for a few minutes and then stop it.
3. Wait a few minutes for the oil to stabilize.
4. Remove the cap/oil gauge (01).
5. Wipe the cap/gauge and reinsert it into the filling orifice without screwing it up.
6. Remove the filler cap/gauge and check the oil level
7. The oil level shall be between the minimum (2) and maximum (3) level marks without exceeding the latter.

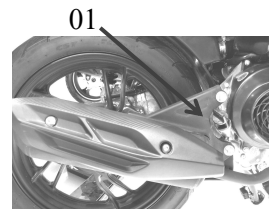


Fig8

8. Add oil if necessary

Brake system inspection

The scooter is assembled with front hydraulic disk brake and rear drum brake. For safety concerns, it is necessary to inspect the abrasion of brake pads regularly.

Front hydraulic disk brake

Replace brake pads (Fig9)

- ① abrasion marks
- ② brake disk
- ③ brake pads

Observe the abrasion marks on brake pads, in case the abrasion marks touch the brake disk, it is necessary to replace brake pads immediately.

Inspect the front brake disk (Fig10)

When the front disc gets worn to the limit (see the notice on the disc: MIN.TH.3mm), the old disc must be changed in order to avoid negative impact to the brake performance.

Inspect the brake fluid level (Fig11)

Insufficient brake fluid will draw air into the brake system and cause brake failure, so it is necessary to inspect the brake fluid level before each ride.

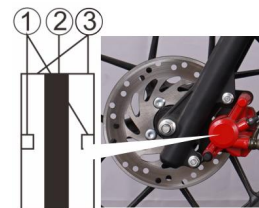


Fig9



Fig10



Fig11

Obey the following instructions to inspect and refill the brake fluid.

1. Swing the handlebar and make sure the main cylinder is at the horizontal position.
2. Check the fluid level observation window, if brake fluid is not visible, refill it immediately.

Non-standard brake fluid will corrode and deform the oil seal, and bring oil leakage. The recommended brake fluid grade is DOT3.

① Brake fluid level observation window (Fig12)

3. When refill brake fluid, prevent water from getting into the main cylinder.

Mixed water into brake fluid will drop down the boiling point and cause air resistance in the brake system.

4. Brake fluid has corrosion. In case brake fluid spill or touch the parts surface, wipe it off immediately.

The free stroke of rear brake handle (Fig 13、 Fig 14)

Measure the free stroke of rear brake lever before braking function,

The free path should around 14 mm , take the tail of brake handle as standard.

- Adjust nut: (A) increase the free stroke.
(B) reduce the free stroke

After adjusting, the axle pin (2) should touch closely with nut (1) groove after adjust.

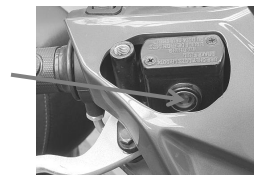


Fig12



Fig 13

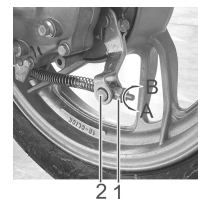


Fig 14

Abrasion mark of the brake (Fig 15)

- (1) Reference marks
- (2) Indicating mark & Reference mark

In fully braking condition, if indicating mark on brake arm lines up with reference mark on rear drum, change the brake shoe immediately for safety concerns.

Notice: In order to maintain maximum safety and reliability of your vehicle, you are advised to have maintenance and repairs carried out by a registered dealer who has the necessary technical training, specific tools and spare parts.

Tire:

Check the tire pressure regularly and adjust if necessary.

Front tire pressure: 225kPa Rear tire pressure: 225kPa

- Tire pressure should be cold-checked regularly.
- Check if the motorcycle has a flat tire, mend it immediately when it has.
- Check if any metal trash or gravel in the groove of tires.
- Change the tire when the thread wear limit.

ADMONITION:

- **Incorrect pressure causes abnormal wear and affects road behaviour, thus making driving dangerous.**
- **When replacing tyres, you are advised to mount tyres of the same brand and equivalent quality. In case of puncture, it is forbidden to mount an inner tube in a tubeless tyre.**

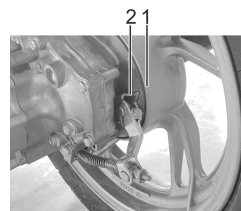


Fig 15

Start engine (Fig 16)

- Put the key into the key hole and turn to “ON”.(Fig 16)
- Electric starter: press start button (Ⓢ) to start engine, don't keep the start button pressed more than 5 seconds each time(Fig 17).

NOTICE:

- **Electric starting is based on grasping the brake handle.**
- **If electric starting doesn't work, there must be a break for 30 seconds before you start the engine with it again.**
- **When start the engine in cold condition, please warm up engine for 3 minutes before running.**
- **The engine will be over heated if it works for a long time at idle speed in an extremely hot day, you need to power off the engine immediately.**

First running of the scooter

For end users, please pay great attention to the break-in period of a new scooter.

Start the new scooter, and keep it rotate at the idle speed for 10 minutes. The initial 500km is deemed as the break-in period, referring to mileage readings on the odometer. The break-in quality has a great impact on the service life of a scooter. Keep in mind to limit the driving speed under 60km/h during the break-in period.

After the break-in period is finished, it is highly recommended to carry out the 1st time maintenance , the major objective is to make up the slight abrasion and prolong the engine's life, and provide the best driving performance.



Fig16



Fig17

Drive motorcycle

WARNING:

- **The temperature of exhaust pipe is pretty high during driving, you will be scalded if touch it carelessly, even within short period of time after engine is shut off, the high temperature can also cause injury, so wear trousers to protect your legs against injury.**
- **Wear helmet, glasses, and gloves when driving.**
- **Loose or unsuitable clothes may cause an accident during driving.**
- **All device must be installed according to requirement of the traffic rule. Take the license with you when driving , each equipment of the motorcycle should accord with the local traffic law.**

Driving operation

- **Release Main-Stand and sit on the saddle, step on the ground by left foot to make motorcycle plumb with floor.**
- **Squeeze the brake lever with your left hand, grip the grab handle with your right hand and push the vehicle forwards to fold up the central stand.Sit on the vehicle.Release the left brake and turn the throttle slowly with your right hand to start moving.**

Notice:

- **Do not make a sudden speedup or speed-down with the throttle grip to prevent that motorcycle rush out unexpectedly.**
- **Driver must release the side stand before driving and try to know the status of running road**

Brake operation

1. Control the throttle grip.

You must control the throttle grip and use both of the brake systems to slow down.

Notice: Drive carefully when driving in bad situation like on slippery road ,in rainy days. Do brake operation, speedup operation or turning operation carefully.

2. Front brake and rear brake work at the same time.

Notice: When driving down on a cliff brae, close the acceleration entirely and use both of the brake system to make the speed lower. Don't do brake operation continuously to make it too hot, which will affect the performance of brake.

Warning: When driving on a smooth or curving road at a high speed, don't use only one brake system, you must use both rear and front brake system at the same time to avoid an accident.

Power off the engine (Fig 18/Fig 19)



- Close acceleration: revolve to the end as the direction of the picture showing (commonly, the engine will become in idle situation at the moment when you release the throttle grip)
- Turn the ignition switch to “”
- For temporary parking, you can switch the power -off button to “”, then the engine will stop working.




Fig18



Fig19

Parking operation:

When parking, turn the key to () position, put down the support and lock the handle well.

Warning: Park the motor on a flat ground, or it may fall down and cause injury.

Notice for anti-theft

- Lock the steering and do not leave key in the key hole before you leave.
- Park the motor in a car barn if possible.

IV、 Maintenance and service

Maintenance periodic form

This maintenance is based on the odometer, See the Maintenance periodic form as an important guide for your motor's maintenance on schedule. You should increase the frequency of maintenance if you use the motor at a high speed in a bad situation for a long time. Some main parts of your motor should be inspected by a career man after a repair for most parts or collision, like Frame, hanger, or turning parts , Repair or replace broken parts to secure your safety.

Notice: Never refit your scooter for safety concerns. Repair your scooters with authentic parts when make replacement. Otherwise, the performance and operational function of your scooter may be undermined.

Warning: For the safety concerns, no matter whatever maintenance work is carried on, first power off the engine, park the motor on a flat ground and support the motor with stands well.

Notice: in case your scooter has not been driven for over a month, remember to check the tire, battery condition and key parts solid fastening before driving.

Check before maintenance

I: Inspect and adjust it when need.

C: Clean

R: Replace

Table 2

Item	Checks	Odometer reading					
		1000Km New	4000Km 3 months	7000Km 6 months	10000Km 9 months	13000Km 1 year	16000Km 15 months
Air filter element	• Inspect/cleaning	●				●	
	• Replace			●			●
Engine oil filter	• Cleaning	●		●		●	
Fuel pump filter	• Replace	●			●		
Engine oil	• Change.	●	●	●	●	●	●
Tires	• Check air pressure.	●	●	●	●	●	●
	• Check tread depth and damage			●		●	
	• Replace if necessary.				●		
Battery	• Inspect	●					
Spark plug	• Check condition. Clean and regap.		●		●		●
	• Replace					●	
Valves	• Check/adjust valve clearance.			●			●
Carburetor/ECU idle speed	• Inspect	●					
Handlebar	• Tightening inspection	●		●		●	
Gear oil	• Check oil level and vehicle for oil leakage.	●	●	●	●	●	●
	• Change.	●		●		●	
Crankcase	• Check for oil leakage	●	●	●	●	●	●
Transmission belt	• Check condition		●				
	• Change.						●
Fuel hose and fuel cock	• Check	●		●		●	
Throttle cable operation	• Check	●		●		●	

Engine fastening bolt torque	• Check	●		●		●	
Shock absorber	• Check condition	●				●	
Cushion ,engine installment	• Check				●		
Suspension system	• Check	●		●		●	
Clutch friction plate	• Check				●		
Brake cable ,brake pads	• Check	●			●		
Tightening bolts	• Inspect for crucial part	●			●		

* Unless you are an expert on machine and hold a full set of tools and maintenance data, or leave your motor to a mechanic person to maintain or repair;

** For safety, we claim all of items done by mechanic person.

Note : 1. You' d better shorten the period of maintenance if use the motor in a particularly moist or dusty area, and when the fuel consumption becomes more and more, and accelerated effect is bad, you should change some parts.

2. If you usually drive the motor on rugged roads, please go for a maintenance to protect the performance of the vehicle .

3. Change as the season changes in a cold area.

Clean the air filter (Fig20)

- Take down the fixing bolt of air cleaner cover.
- Take out the core from the air cleaner box.
- Clean the filter element using compress air or dry brushor put a new filter in the air clean box.
- Do the above oppositely to install the air filter.

Fig20



NOTICE:

Never use gasoline or low burning point solvent to clean.

Battery maintenance (Fig21)

A maintenance-free battery must never be opened for topping up.

NOTICE: Never take apart upper cover of the electrolyte.

If the vehicle is not used for a period of 1 month or even longer, the battery charge must be preserved:

- - Using a maintenance charger (if the vehicle is not used for a long period).
- - If not, by disconnecting it from the vehicle (if the vehicle is not used for a period of less than 2 months).

If the peg of battery is corroded. Please take it off and clean.(use boiled water)

NOTICE: Battery power leads must never be disconnected while the engine is running. Disconnect negative terminal first and then positive terminal, when installing, connect the positive terminal first and then the negative terminal.



Fig21

Replace engine oil (Fig22)

Suggested engine oil grade:

SJ10W-40

After the 1st 1000km or 1-month riding, replace the engine oil for the 1st time.

Afterwards for every 3,000km, replace engine oil once.

Rated engine oil volume for replacement: 600ml

Notice:

When carry out an overhauling on engine, refill the engine oil at a rated volume of 700ml.

- Place the vehicle on its central stand on flat ground.
- Remove the drainage cap and its seal and allow the oil to drip into a container.
Take out oil filter 1 then take strainer 2 and spring 3.
- Clean the oil filter net using liquor
- Fill in the oil filter net, spring and the cover of oil filter screen.
- Pour the required quantity of oil corresponding to the manufacturer's standards into the filler hole.
- Start engine and keep it working at idle speed for few minutes, then turn it off.
- Measure the oil volume of engine again to make sure it does not leak.

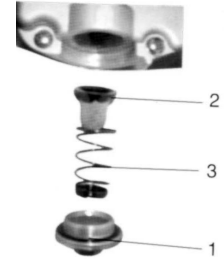


Fig22

Change gear oil (Fig23)

We suggest gear oil grade:

85W/90 Winter (you can use anti-freezing oil in very cold area)

85W/140 Summer

Gear oil capacity: $110 \pm 10\text{ml}$

- Place the vehicle on its central stand on flat ground.
- Screw out the immersion bolt 1 and oil-drain bolt 2.

NOTICE: When draining the oil, the engine needs a certain temperature, use the main stand to support the motor, make sure all the oil is drained.

- Clean the drain bolt and then re-install it.
- Add oil into the orifice of the immersion bolt slowly till the oil spill over.
- Fix the immersion bolt and screw it tight.

Inspection of clutch and CVT belt

- Disassemble the left crankcase cover
- Clean the inside of crankcase cover, check if the transmission belt has crack or damage, and replace it if necessary (Fig24).
- Check the clutch rollers ①, replace the complete set in case they are over worn.
- Check the abrasion of sleeve ② (Fig25)
- Check if the positioning bush ③ has crack or damage, replace it if necessary. (Fig26)

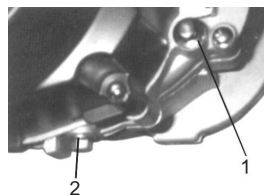


Fig23

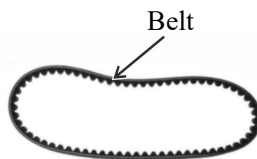


Fig24

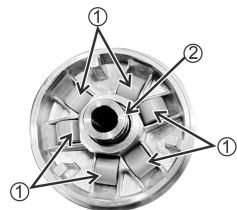


Fig25

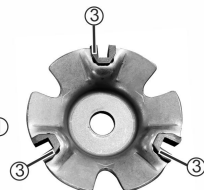


Fig26

Spark plug (Fig27)

Spark plug specification

Standard: CPR8EA 9

- Disconnect the joint of the spark plug cover and take apart the spark plug with special spanner.
- Check if there is any burning ash or accumulated dirt on electrode or porcelain head, if it singed badly, replace the spark plug, Clean the ash or dirt with plug cleanser or a brush.
- Normally the gap between side electrode (1) and Center electrode (2) is 0.6-0.7 mm.
- Don't use other kind of spark plug with different specification.

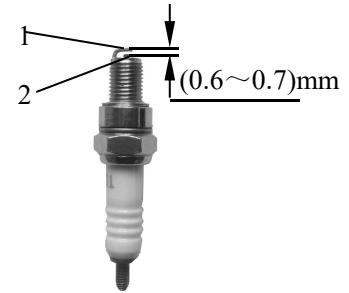


Fig27

Fuse replacement

The rated electric current of the fuse is 10A. If a fuse often blows this is usually a sign of a short circuit in the electrical circuit. You are advised to have the system checked by a registered dealer. You are advised to switch off the ignition before changing a fuse and always to replace it with a fuse of the same rating. If you do not do so, this may lead to damage in the electrical circuit or even a fire.

V. Vehicle storage

STORAGE

If the vehicle hasn't been used for a long time, some steps should be taken to prevent failure and damage from the parts. Besides, before the long-time storage, proper measures should also be done.

- Change the engine oil.
- Drain out the fuel in the fuel tank and oil in the carburetor.

Warning: Gasoline is inflammable and may cause fire and even explosion on certain conditions. Therefore, no fire when driving.

- ◆ Take apart the spark plug, add about 15~20ml oil into the cylinder, step down the kick pedal several times and then fix the spark back on.
- ◆ Remove the battery and place it in a place without strong light or frozen ice, charge it regularly.
- ◆ Clean the vehicle and wipe it dry, wax on the surface of the paint, and add anti-rust oil on other metal parts.
- ◆ Cover the vehicle and put it in a well-ventilated place.

Use the vehicle after long-time storage

- Take off the cover and clean the vehicle. You should change the oil after 4 months above storage.
- Charge the battery if necessary, and fix it on.
- Check all the parts before driving. Ride motorcycle in a low speed in non-busy area, make sure the safety.

VI. Vehicle Identification.

Position of the model code, vehicle identification number and engine number (Fig 28)

Provide the numbers above when register to get the license, do yearly inspection, and enjoy the after-service .

The rivet for fixing name plate is on the right side of main frame.

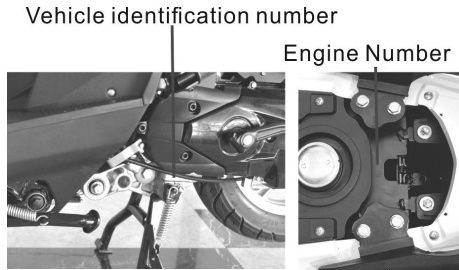


Fig28



Fig29

VII. Tool Kit

Tool kit bag (Fig 29)

Tool kit bag is placed in the luggage box under the saddle, and tool kit contains the following tools:

open spanner 12-14, allen wrench, dual-purpose screw driver, spark plug socket wrench

VIII. Main technical specifications

Table 3

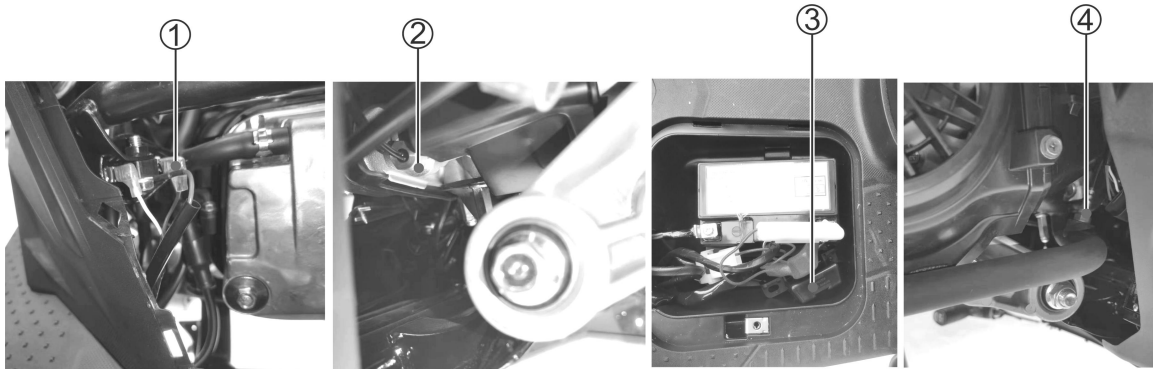
		110cc	
Item	Parameter	Item	Parameter
L×W×H (mm)	1920×660×1110	Bore x stroke(mm)	50.0×55.0
Wheel Base (mm)	1270	Compression ratio	9.2: 1
Ground Clearance (mm)	110	Inlet valve clearance(mm)	0.08-0.10
Dry Weight (kg)	99	Outlet valve clearance(mm)	0.08-0.10
Top speed (km/h)	86	Lubrication system	Pressure splash lubrication
Economic Fuel Consumption L/100km	2.0	Gear shifting type	Automatic CVT
Fr. Brakes	Disc brake	Transmission type final drive	Belt
Rr. brakes	Drum brake	Starter	Electric start /Kick start
Fr. brakes diameter(mm)	220	Ignition way	ECU
Rear brakes diameter(mm)	130	Engine mode	1-cylinder/4-stroke
Fr. tyre	80/90-14	Headlight (low beam/high beam)	12V 8W/16W
Rr. tyre	90/90-14	Back light	12V 3W
Fuel tank capacity (L)	4.5L	Turning light(Fr/Rr)	12V 2W/0.3W
Battery	12V 7Ah	Front position light	12V 3.8W
Max. power (kw/rpm)	6.8/7500	Back position light	12V 1.2W
Max. torque (N.m/rpm)	8.9/6000	Back license light	12V 0.8W

IX.EFI system owner's manual

1. Introduction

Because of the EFI, there are many possibilities for the engine issues. In other word, one issue may be caused by the mechanical problem or the EFI components. And the diagnostic tools cannot 100% indicate the root cause. So this manual shows the way to dig out the root cause with the help of the diagnostic tools.

2. Description

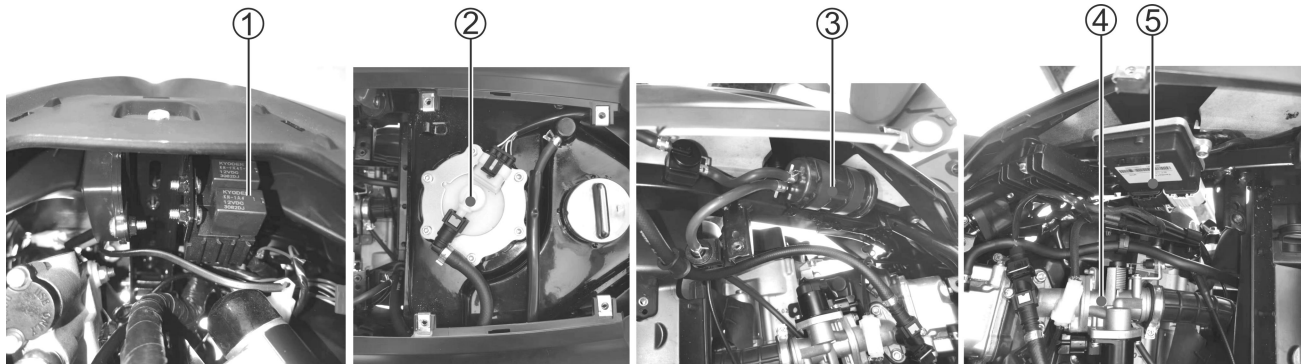


1. Ignition coil

2. Cylinder temperature sensor

3. OBD

4. Oxygen sensor



1. Relay

2. Fuel pump

3. Carbon tank

4. Valve throttle body

5. ECU relay

3. Precautions

- 1) Do not disassemble the components arbitrarily. It may damage the components if the water or the oil seep into the parts.
- 2) Turn the ignition off, before connect or disconnect the connectors.
- 3) Make sure the temperature of the ECU is below 80°C.
- 4) The fuel pressure is much high (about 250kPa), so please do not disassemble the fuel pipe arbitrarily. If have to, please release the pressure at first, and make sure the operation is delivered in the ventilated environment by the professional maintenance persons.
- 5) When disassemble the fuel pump from the pump, make sure the power is off. Or it may cause the fire.
- 6) The fuel pump cannot work in air or water, it will shorten the service life. And the positive and negative connectors cannot be exchanged.
- 7) The ignition system check only could be delivered when it is necessary. When check the spark plug out of the engine, if start the engine, please make sure the throttle is closed. Or too much unburned gasoline coming to the catalyst may damage the catalyst.
- 8) The idle speed is adjusted by the ECU. The idle pintle is not allowed to adjust.
- 9) The Positive and Negative of the battery cannot be reversed. It may damage the EFI components.
- 10) It is forbidden to remove the battery when the engine is running.
- 11) Cannot measure the signal by pierce the harness.

4. Tools

- 1) Multi-meter: measure the voltage, the resistance and the harness connection.
- 2) Diagnostic tool: reading the trouble code, and engine parameters.
- 3) Oil pressure gauge: measure the fuel pressure.
- 4) Cylinder pressure gauge: measure the pressure gauge.

5. Maintenance depending on the fault code.

Description

- 1) If the issue cannot repeat, the issue analysis may be wrong.
- 2) The multi-meter below means the digital type. Pointer-type is forbidden.
- 3) If the fault code shows the voltage is low, it means maybe the wire is short to ground. If the fault code shows the voltage is high, it means maybe the wire is short to battery. If the fault code shows the components signal abnormal, it means the wire is open or short to other wires.

Diagnostic help:

- 1) If the fault code shows again after clearance, check whether the connector is connected well.
- 2) Do not ignore the affect of the engine maintenance situation, the cylinder pressure, and the mechanical ignition timing.
- 3) Change another ECU to do the test. If the fault code disappears, the root cause is the ECU. If the fault code is still there, then use the old ECU to do the test.

6. Maintenance depending on the performance.

Before issue analysis, please check:

- 1) The MIL works well.
- 2) Clear the history fault code.
- 3) When the fault code comes again, note the conditions.

Check the appearance

- 1) Whether there is leakage of the fuel pipe or not.
- 2) Whether there is block/leakage or damage of the intake pipe.
- 3) Aging level of the high-voltage cable.
- 4) Whether the ground connection is strong enough.
- 5) All the connectors connected well.

Note: if any item above exists, please do the fix it at first before issue analysis.

Diagnostic Help:

- 1) Make sure there is no any issue record of the engine.
- 2) Make sure the issue could repeat.
- 3) Have checked follow the instructions above and no cause found.
- 4) Do not ignore the maintenance situation, cylinder pressure, mechanical timing and fuel quality.
- 5) Change the ECU and repeat the test, if the issue is gone, then the root cause is the ECU. Or change the old one back to check the root cause.

