4. Ignition system

Notice before service

1. The content of this chapter requires certain maintenance experience . It is recommended to go to a qualified maintenance unit for inspection or maintenance.
2. After power is turned on , do not remove components connected to the 12V power supply at will to avoid the coil in the electrical appliance generating self-inductance and causing instantaneous voltage to damage the ECU or sensor.
3. Use spark plugs with the correct calorific value. Spark plugs with inappropriate calorific value may damage the engine.
4. Ignition system failures are most commonly caused by poor plug connection and corrosion of terminal blocks , so these two items should be checked first.
5. Since the ECU is preset at the factory , the ignition timing cannot be adjusted. If the ignition timing needs to be adjusted, it can only be returned to the factory for repair.
6. Make sure the battery is fully charged. Insufficient battery may result in slow starting speed or weak or no spark .
tool:

multimeter


7. The driving conditions and maintenance status of each vehicle are different, so it is impossible to list all the fault phenomena and troubleshooting processes one by one. Only some of the more common faults can be listed. The maintenance personnel themselves also need to have certain professional knowledge and experience accumulation process.
8. For details on spark plug disassembly and inspection, please refer to the " Spark Plug " section in the " Maintenance " chapter of this manual . Before removing the spark plug, you need to use a dust blower to clean up the surrounding debris and dust. After removal, you need to block the spark plug port to prevent foreign matter from falling into the engine.
9. If there is a "  " symbol on the right side of the step , you can click it to quickly jump to the corresponding step.

 WARNING

● Do not plug or unplug the plugs of the components at will, and do not clean the plugs directly with water. Be sure to check whether they are plugged back in correctly after plugging or unplugging .

Troubleshooting

Check the following items before diagnosing the ignition system

a. Check whether the spark plug is abnormal ;

b. Check whether the high-voltage cap or plug of the ignition coil is loose ;

c. Check whether the high pressure cap has water in it;

d. If there is no spark, first find an ignition coil of the same model that is confirmed to be fault-free and install it on the faulty vehicle to test whether there is spark;

e. Check whether the "initial voltage " of the ignition primary coil is consistent with the battery voltage by unlocking the vehicle and turning the ignition switch to " " without starting the engine .

Spark plug no spark

1. Improper spark plug gap

the gap is too small, the electrode will have a " flame extinguishing " effect , suppressing the flame generation, and the spark intensity will be weak; if it is too large , the ignition voltage will result in no spark. Adjust to the standard 0.8-0.9 mm (0. 0 31-0.035 in).

2. A layer of oil film adheres to the surface of the spark plug electrode

Engine oil or gasoline leaks into the combustion chamber and adheres to the electrode surface, causing the electrode to short-circuit and resulting in no sparks. Engine oil generally leaks in from the gap between the piston and the cylinder wall or the valve guide . Check whether the gap is normal. If it is not normal, replace the corresponding parts. The accumulated gasoline may be caused by the mixture being too rich when the cold engine is started . You can clean it first and then try to ignite it.

3. Spark plug cover is damaged

high voltage current breaks through the damaged cover and causes leakage, and the spark plug needs to be replaced.

4. There is carbon deposit on the electrode, and the central electrode leaks electricity to the surrounding area instead of discharging to the electrode.

Excessive accumulation of carbon or oil on the electrode may cause a short circuit and burn out the insulator . Clean the carbon deposits or replace the spark plug.

5. Electrode damage

The center electrode is damaged due to long-term spark erosion or chemical corrosion by combustion gas ; it needs to be replaced .

6. Spark plug insulation is reduced

Deterioration of insulation performance will weaken the ignition voltage, resulting in weaker or no spark ; replacement is required

7. The high voltage wire of the ignition coil is short-circuited

Ignition coil needs to be replaced

8. Low battery level

Insufficient power leads to weak spark or no spark. Please charge it with the charger provided with the vehicle. Or charge it during long-distance riding .

9. ECU failure

After eliminating the above reasons, you can remove a good ECU from a vehicle of the same model and replace it with the faulty vehicle to make a judgment.

Ignition system layout

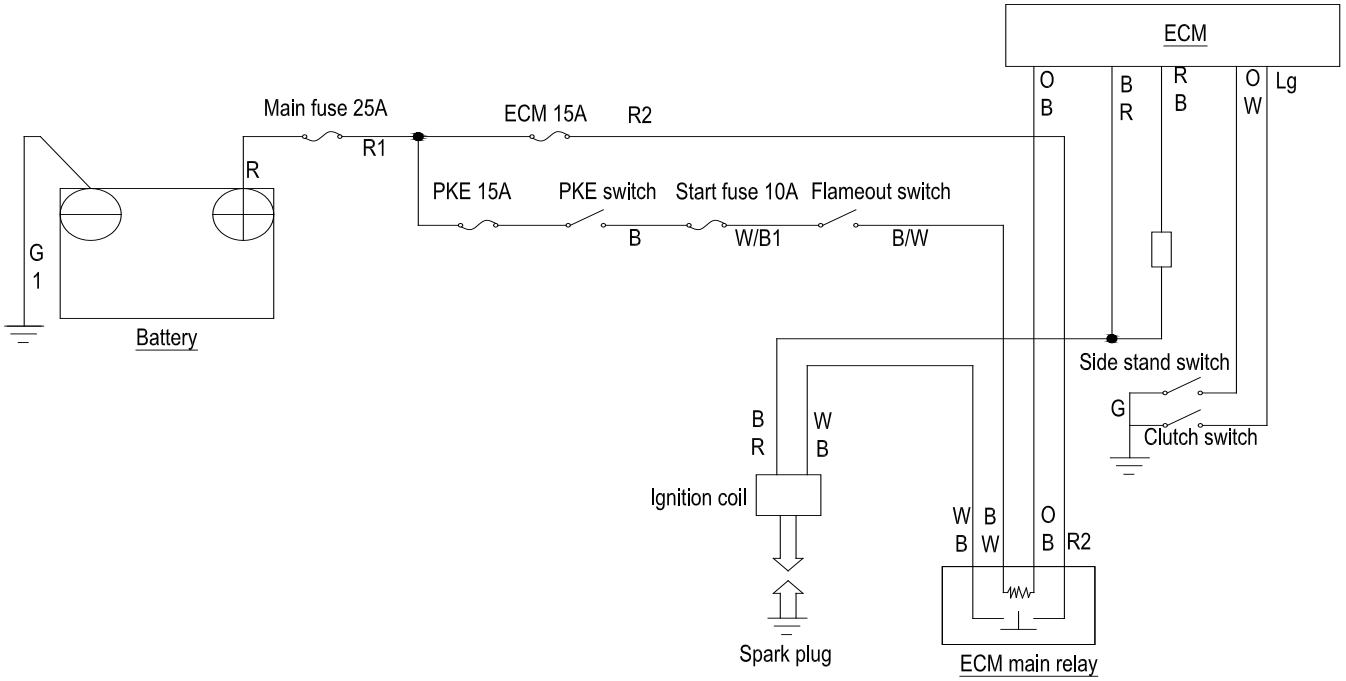
1- Right Handlebar Auxiliary Switch 2-Engine controller (ECU) 3- Relay 4-Battery
5-Side stand flameout switch 6- Ignition coil body 7-Crankshaft position sensor 8- Spark plug
9- High voltage wire 10-Dump switch 11-Start relay 12-PKE 13- Steering lock 14- Right handlebar switch

Remark:

● The fuse box is built into the main wiring harness, and there are 3 in total . For detailed diagrams, see "Layout of Electronic Injection Components" in the " Electronic Injection System " chapter of this manual .

●The magneto stator and crankshaft position sensor are integrated into one part and cannot be replaced separately. For details on crankshaft position sensor troubleshooting, please refer to the crankshaft position sensor section in the " Electronic Injection System" chapter of this manual, "Electronic Injection Parts Fault Diagnosis and Troubleshooting " .

Ignition system electrical schematics



Ignition system inspection

Notice:

●If there is no spark from the spark plug, first check whether all cable connectors are loose or in poor contact before inspecting the ignition system.

●Use a high-precision digital multimeter.

ignition coil testing methods, please refer to the ignition coil section in the "Electronic Fuel Injection Parts Fault Diagnosis and Troubleshooting " in the " Electronic Fuel Injection System" chapter of this manual.

Pull out the high-voltage cap , find a spark plug of the same model that is confirmed to be normal, install it on the high-voltage cap close to the cylinder head cover to do an ignition test to confirm whether the ignition coil is faulty .

Refer to the section on crankshaft position sensor in "Electronic Injection Parts Fault Diagnosis and Troubleshooting " in the " Electronic Injection System" chapter of this manual to check for abnormalities.

Ignition coil

on ignition coil disassembly , assembly and testing methods, please refer to the Ignition Coil section in the " Electronic Injection System" chapter of this manual, under the "Electronic Injection Parts Fault Diagnosis and Troubleshooting " .