

The damage of the mass flow sensor is often caused by the fact that the air filter is not replaced for a long time or the bad quality, which leads to the accumulation of dust in the mass flow sensor, thus affecting its detection accuracy and life.

There are five common faults of the mass flow sensor, including abnormal air flow voltage range, high air flow voltage, low air flow voltage, thin mixture, and thick mixture. All these faults will lead to the car idle shake, flameout, weak acceleration, high fuel consumption and dark smoke from the exhaust pipe.

## **Detection Methods**

It can be judged by measuring the output voltage when the engine is running. The standard voltage is 0.8-1.4 V in the case of dynamic signal voltage at the end of the plug and idle speed of the engine. When it is accelerated to full load, the voltage signal can approach 4V. If it is not within the range, the mass flow sensor may be damaged, or it may be dirty, and you should clean it.

It can be determined by measuring the output voltage of the sensor. By a multimeter, you can get the general voltage value that is 5V, with a dryer used to the sensor. If the voltage changes with the size of the air volume, it would be normal. But if there is no change, it will indicate that the mass flow sensor fails and needs to be replaced.

For instance, a car is idle and unstable, is of bad acceleration. And it is suspected that the hot film mass flow sensor signal is failed. You can unplug the mass flow sensor when the engine is running and observe the change of the engine. There will be the following three circumstances.

Failure Solved

It shows that the signal of the mass flow sensor has deviated and there is no damage. The ECU has been controlling the oil injection according to the wrong signal. Due to the mixing ratio imbalance, engine combustion is abnormal, and there will be unstable engine speed or poor power.

When you unplug the mass flow sensor, the ECU cannot detect the intake signal and immediately enters the failsafe function. It will replace the mass flow sensor signal with the throttle position sensor signal so that the engine continues to operate at the replacement value.

Therefore, if the fault disappears when you pull out the plug of the mass flow sensor, it is explained that the signal is not correct before pulling out the plug, and the signal is right after pulling out the plug. It can be confirmed that there is a problem with the mass flow sensor and the signal voltage is generally low.

Bad parts quality -- you should replace them.

Dirt -- you should clean it with the agent.

#### No Change of Failure

It indicates that the mass flow sensor has been damaged or the circuit is bad, causing the ECU not to receive the signal at all or receive the overvalue signal. The ECU confirms the bad signal of the mass flow sensor and enters the failure protection function.

At the same time, the fault code is stored in the memory, and the failure lamp flashes (if there is). At this point, pulling out the plug of the mass flow sensor or not will lead to the same result, and the fault phenomenon will not change. Hence, there should be other causes. When the real cause is found, you must replace the mass flow sensor.

#### Slight Change of Fault

It shows that the mass flow sensor is good. Before pulling out the plug of the mass flow sensor, the ECU controls it according to the signal of the mass flow sensor. And the fuel injection volume is accurate and the engine is in good condition.

When you unplug the mass flow sensor, the ECU controls it according to the throttle position sensor signal, and the fuel injection volume is different. This slight change can be read from the data stream. Also, the engine condition is relatively not good.