How to tell the ECU is damaged?

You can do as below:

1) Key off, and disconnect 12V+ of ECU harness;

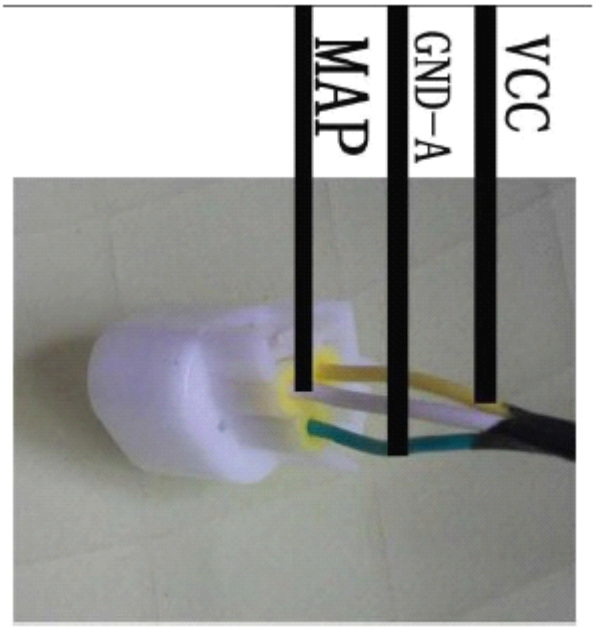
2) Disconnect the MAP sensor;

3) Use a multi-meter, Measure the resistance between the 2 wires on the connector of harness side, as in the below picture:

What is resistance between the 2 wires of "VCC" and "GND-A"?

If it is smaller than 100 ohm that means the ECU is damaged somehow. The normal value should be about 1K ohm.

If ECU is damaged, most likely some ground wire is accidentally shorted to the 12V+; or VCC is shorted to ground wire. For example, the GND-A is connected to 12V+; or VCC.



When the ECU is broken and need to replace one, please check the actuator and sensor of system as follows.

1) Check the voltage of the battery. It is lower than 16V, usually it is about 12V.

2) Check the connection as the pictures in manual. And notice whether the wire of harness is damaged.

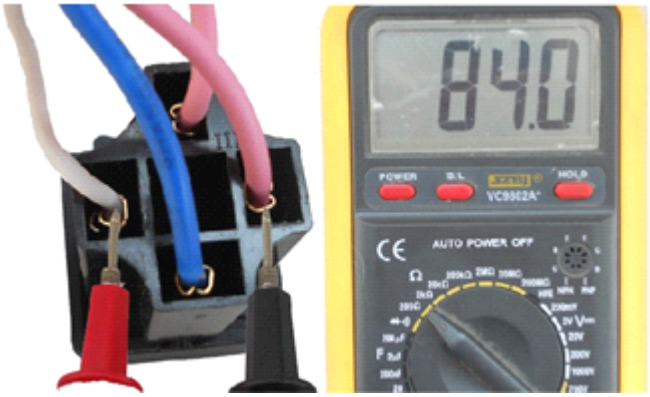
3) Check the other parts of the system.

3.1) Test the resistance of the fuel injector. It is more than 3 ohm, normally 12~15 ohm.

Picture 1

Picture 2

3.2) Test the resistance of the fuel pump relay. It is more than 60 ohm.



Picture 3

3.3) Test the resistance of the oxygen sensor at room temperature. It is more than 6 ohm, range about 8~12ohm.

Picture 4

3.4) Test the resistance of the stepper motor which is mount on the throttle. It is about 45~55 ohm.
Picture 5 and 6 are the way testing for stepper motor of **34mm throttle** body

Picture 5

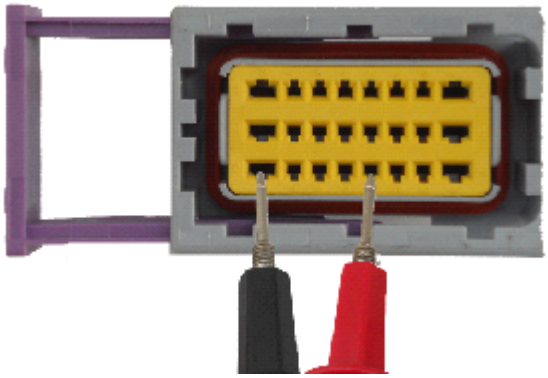
Picture 6

Picture 7 and 8 are the way testing for **other throttle**, 42mm, or 50mm TB.

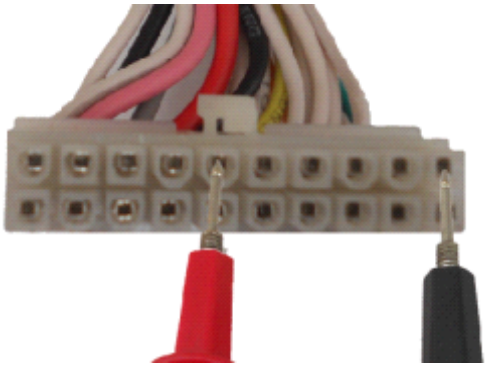
Picture 7

Picture 8

With the MAP and TPS sensor, oxygen sensor, IAT, ECT on the harness, test the resistance of the harness. It should be more than **1000 ohm**.



Picture 9



Picture 10

Test the max voltage used an oscilloscope if necessary.

	MAX voltage	Min voltage
Battery	16V	6V
Injector	40V	12V
Ignition coil (not CDI system)	400V	250V
Crank position sensor	150V	2V
VCC	5.1V	4.9V