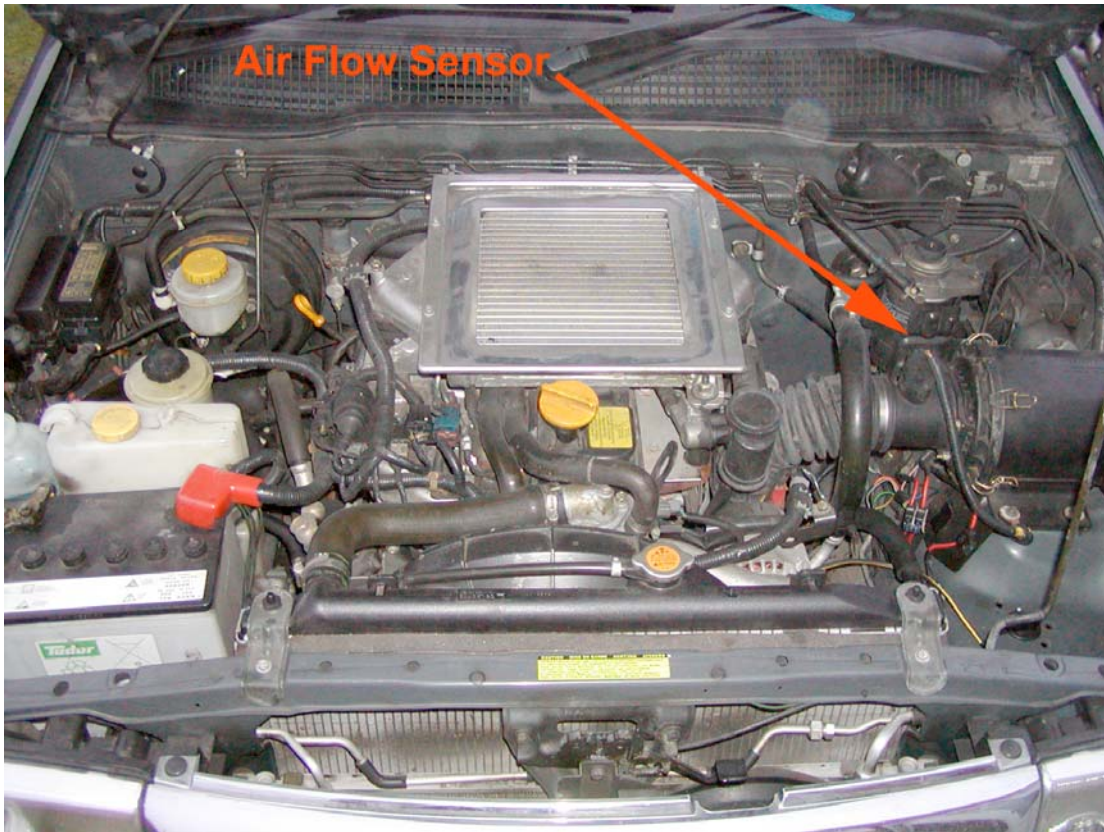


Workshop 2

Air Flow Sensor (Mass air flow sensor)



Terrano 2.7tdi SE+ Year 2000

How it works

The mass air flow sensor measures the intake air flow rate by monitoring only a part of the entire flow. Measurements are made by the ECM which receives electrical signals from the mass air flow sensor which is proportional to the amount of heat emitted from the hot wire placed in the stream of the intake air. When intake air flows into the intake manifold through a route around the hot wire, the heat generated by the hot wire is carried away by the air flow. The amount of heat detected depends on the volume of air flow. The temperature of the hot wire is automatically controlled to maintain it within a finite range regardless of the air flow rate by regulating the current supplied to the hot wire. The ECM monitors the air flow by means of the corresponding electric change.

Fault Symptoms

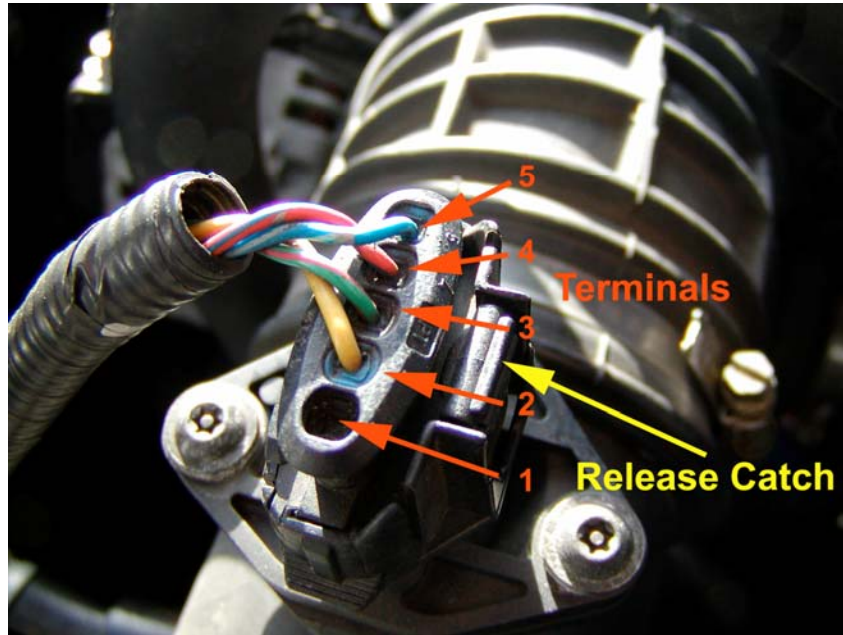
- Hesitation / Surging / Flat Spot
- Lack of Power / Poor Acceleration
- Abnormal Smoke Colour (Black)
- The dreaded MIL (Malfunction Indicator Light)

Simple Checks

- Check the air inlet duct and air filter are unblocked and clean.
- Remember to check the wire mesh filter on the air flow meter assembly.
- Remove the air flow sensor and check it is clean and dust free.



Electrical Testing

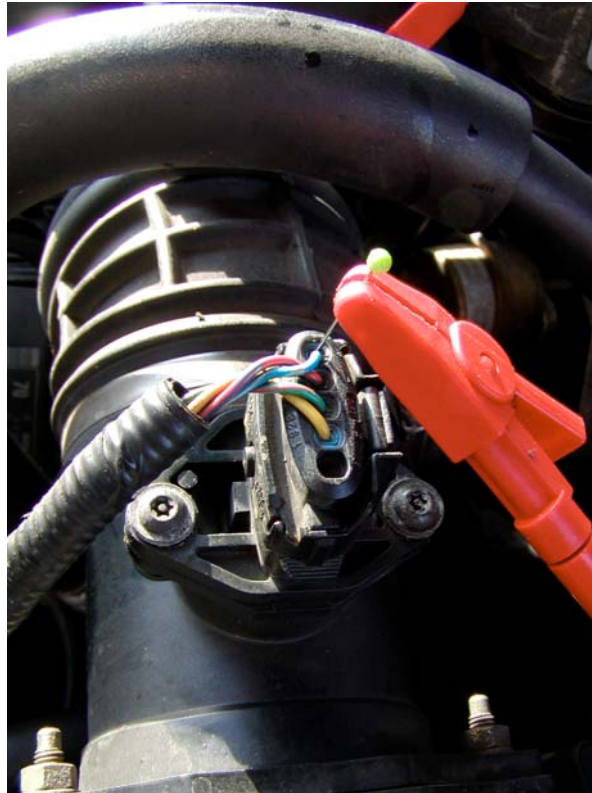


- With the ignition OFF. Disconnect the Plug and Socket.
- Inspect the connections inside the Plug and Socket for any corrosion.
- With the plug and socket still disconnected test for battery voltage (12Vdc) at Terminal 2 with the ignition ON and the engine NOT running.

(The use of a clean pin will help)



- Now reconnect the plug and socket
- With the ignition turned ON and the engine NOT running. Test at Terminal 5
Expect a reading of around. 1 volt dc
- With the ignition ON and the engine running at tick over expect a reading of around 2.2 volts dc at Terminal 5



- If the tests at terminal 5 are abnormal, remove the air flow sensor from the air duct and check for any signs of damage or dirt before replacing the unit.

**Written and produced
By Wilf**