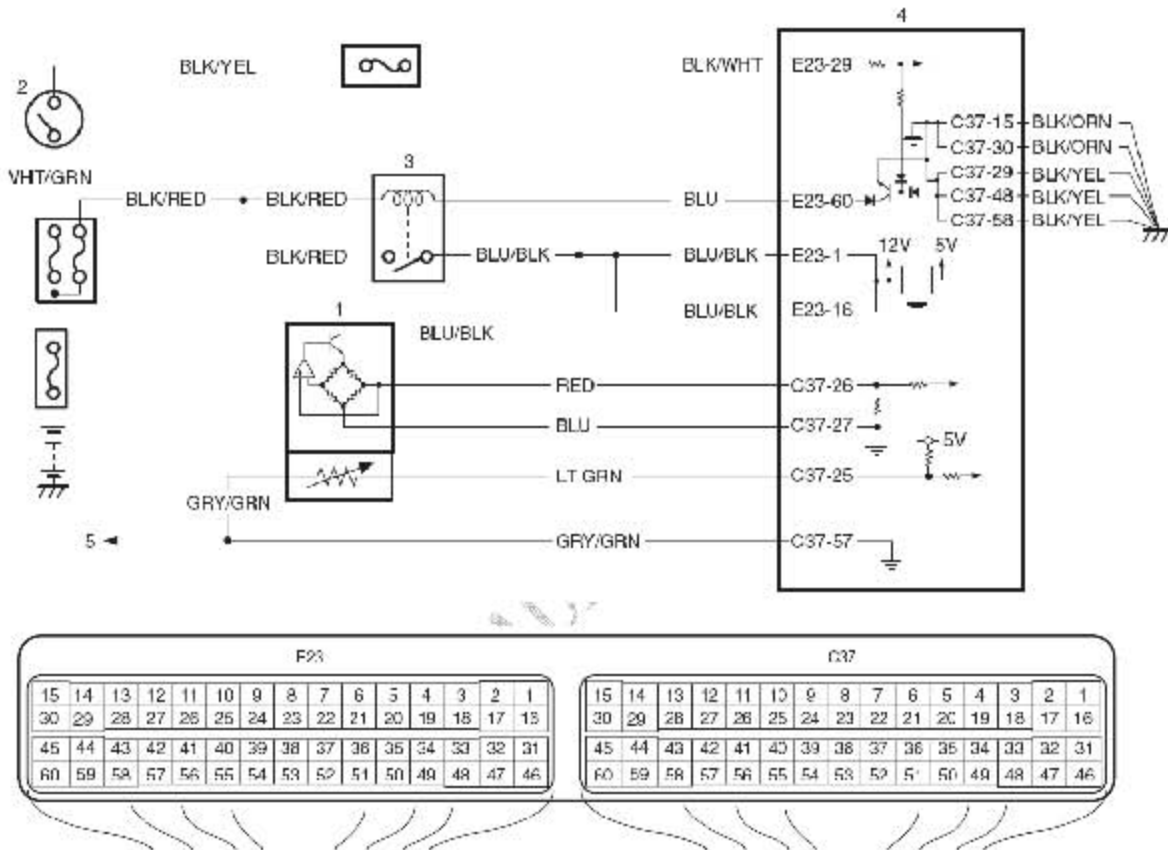


# DTC P0101: Mass Air Flow Circuit Range / Performance

## Wiring Diagram



1. MAF and IAT sensor	3. Main relay	5. To other sensors
2. Ignition switch	4. ECM	

## DTC Detecting Condition and Trouble Area

DTC detecting condition	Trouble area
<ul style="list-style-type: none"> <li>• MAF volume is greater than 25 g/sec even if engine revolution is less than 900 rpm and intake manifold pressure is less than 45 kPa (6.35 psi) with TP less than 3.0°.</li> <li>• MAF volume is lower than 4 g/sec even if engine revolution is more than 2500 rpm and intake manifold pressure is more than 50 kPa (7.25 psi) with TP more than 15°. (2 driving cycle detection logic)</li> </ul>	<ul style="list-style-type: none"> <li>• Air intake system (clog or leakage)</li> <li>• MAF sensor circuit</li> <li>• MAF sensor</li> <li>• TP sensor and/or its circuit</li> <li>• MAP sensor and/or its circuit</li> <li>• ECM</li> </ul>

## DTC Confirmation Procedure

### NOTE

Check to make sure that the following conditions are satisfied when using this "DTC Confirmation Procedure".

- Intake air temperature at engine start: -10 °C (14°F) to 80 °C (176 °F)
- Intake air temperature: -10 °C (14 °F) to 70 °C (158 °F)
- Engine coolant temperature: 70 °C (158 °F) to 150 °C (302 °F)
- Altitude (barometric pressure): 2400 m, 8000 ft or less (560 mmHg, 75 kPa or more)

- 1) With ignition switch turned OFF, connect scan tool.
- 2) Turn ON ignition switch and clear DTC using scan tool.
- 3) Start engine and warm up to normal operating temperature. (ECT approx. 90 – 95 °C, 194 – 203 °F)
- 4) Drive vehicle with engine speed: more than 2500 rpm for 1 min.
- 5) Increase vehicle speed to 80 km/h (45 mile/h) at 5th gear or D range.
- 6) Release accelerator pedal to decrease vehicle speed to 40 km/h (25 mile/h).
- 7) Stop vehicle and run it idle for 1 min.
- 8) Check DTC and pending DTC.

## DTC Troubleshooting

### NOTE

Before this trouble shooting is performed, read the precautions for DTC troubleshooting referring to "Precautions For DTC Troubleshooting: ".

Step	Action	Yes	No
1	Was "Engine and Emission Control System Check" performed?	Go to Step 2.	Go to "Engine and Emission Control System Check: ".
2	<b>Visual inspection Check MAF sensor and air intake system for:</b> <ul style="list-style-type: none"> <li>• Objects which block measuring duct and resistor of MAF sensor.</li> <li>• Other air flow which does not pass the MAF sensor.</li> </ul> Are they in good condition?	Go to Step 3.	Repair or replace.
3	MAF sensor and its circuit check 1) With ignition switch turned OFF, connect scan tool to DLC. 2) Start engine and warm up to normal operation temperature. 3) Check MAF value using scan tool. (Refer to "Scan Tool Data: " for normal value.) Is each value within specified range?	Go to Step 11.	Go to Step 4. Go to Step 5.
4	MAF sensor output voltage check 1) Turn OFF ignition switch. 2) Remove ECM from its bracket with ECM connectors connected. 3) Measure voltage between "C37-26" and "C37-27" terminals of ECM connector referring to "Mass Air Flow (MAF) and Intake Air Temperature (IAT) Sensor On-Vehicle Inspection: in Section 1C". Is each value within specified range?	Poor "C37-26" and/or "C37-27" terminal connection. If OK, substitute a known-good ECM and recheck.	Go to Step 6

Step	Action	Yes	No
5	MAF sensor power supply voltage check 1) Disconnect connector from MAF and IAT sensor with ignition switch turned OFF. 2) Turn ON ignition switch, measure voltage between engine ground and "BLU/BLK" wire terminal (2) of MAF and IAT sensor connector (1). <i>Is voltage 10 – 14 V?</i>	Go to Step 6.	"BLU/BLK" wire is open circuit.
6	MAF sensor ground circuit check 1) Turn OFF ignition switch, measure resistance between "BLU" wire terminal of MAF and IAT sensor connector and engine ground. <i>Is resistance below 5 Ω?</i>	Go to Step 8.	Go to Step 7.
7	Ground circuit check 1) Measure resistance between "C37-27" terminal of ECM connector and vehicle body ground. 2) <i>Is resistance below 5 Ω?</i>	"BLU" wire is open or high resistance circuit.	ECM grounds "C37-58", "C37-48", "C37-30", "C37-29" and/or "C37-15" circuit is open or high resistance. If wires are OK, substitute a known-good ECM and recheck.

Step	Action	Yes	No
8	MAF sensor signal circuit check 1) Disconnect connectors from ECM with ignition switch turned OFF. 2) Turn ON ignition switch, measure voltage between "RED" wire terminal of MAF and IAT sensor connector and engine ground. Is voltage 0 V?	Go to Step 9.	"RED" wire is shorted to others circuit.
9	MAF sensor signal circuit check 1) Turn OFF ignition switch, measure resistance between "RED" wire terminal of MAF and IAT sensor connector and engine ground. Is resistance infinity?	Go to Step 10.	"RED" wire is shorted to ground circuit.
10	MAF sensor signal circuit check 1) Measure resistance between "RED" wire terminal of MAF and IAT sensor connector and "C37-26" terminal of ECM connector. Is resistance below 3 $\Omega$ ?	Faulty MAF and IAT sensor.	"RED" wire is open or high resistance circuit.
11	Is DTC P2135 detected?	Go to "DTC P2135: Throttle Position Sensor (Main / Sub) Voltage Correlation: ".	Go to Step 12.
12	Is DTC P0106 displayed?	Go to "DTC P0106: Manifold Absolute Pressure Range / Performance: ".	Substitute a known-good ECM and recheck.