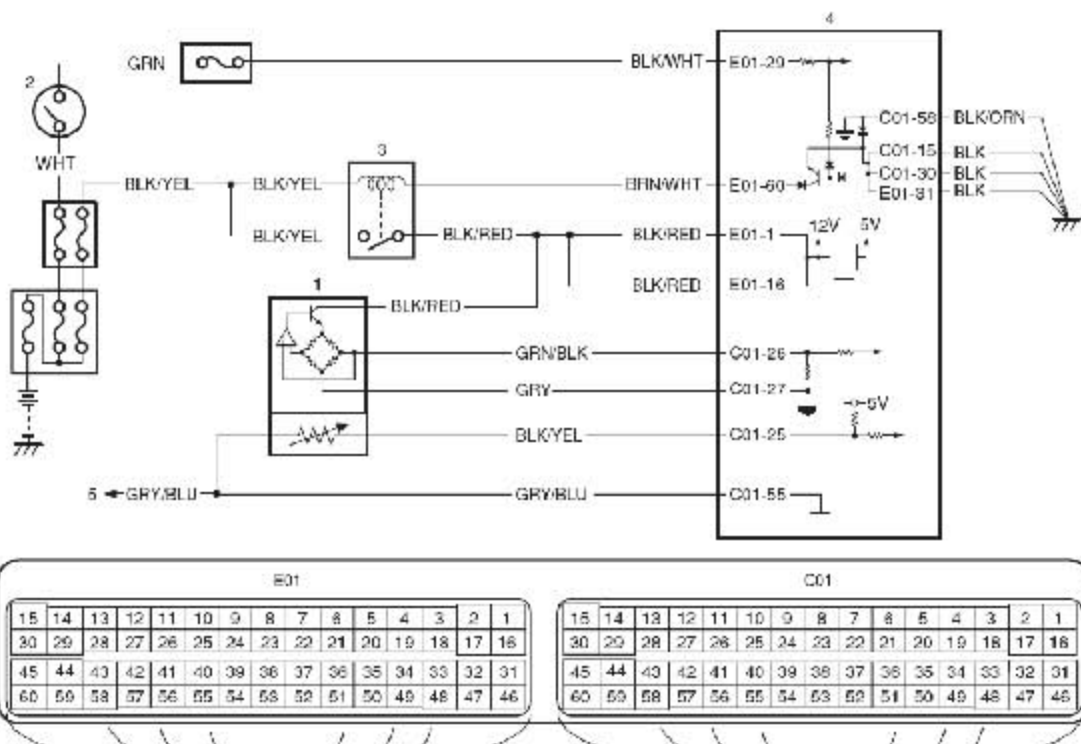


P0101 Mass Air Flow Circuit Range Performance



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"> • MAF volume is greater than specified value after warming up engine with idling condition. • MAF volume is lower than specified value at high speed condition. (2 driving cycle detection logic) 	<ul style="list-style-type: none"> • Air intake system (clog or leakage) • MAF sensor circuit • MAF sensor • TP sensor and/or its circuit • MAP sensor and/or its circuit • ECM

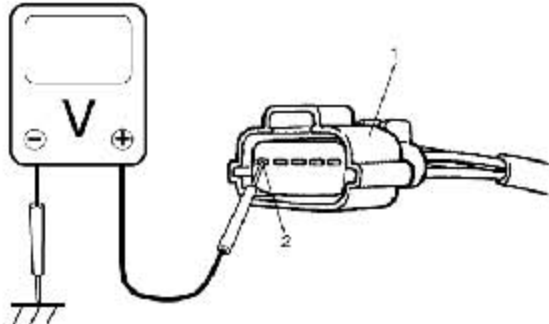
DTC Confirmation Procedure

- 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 100 km/h (62 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

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	Visual inspection Check MAF sensor and air intake system for: <ul style="list-style-type: none"> • Objects which block measuring duct and resistor of MAF sensor. • Other air flow which does not pass the MAF sensor. 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, install scan tool. 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.

Step	Action	Yes	No
4	<p>MAF sensor output voltage check</p> <p>1) Turn OFF ignition switch. 2) Remove ECM from its bracket with ECM connectors connected.</p> <p>3) Measure voltage between "C01-26" and "C01-27" terminals of ECM connector referring to "Mass Air Flow (MAF) and Intake Air Temperature (IAT) Sensor On-Vehicle Inspection in Section 1C".</p> <p>Is each value within specified range?</p>	<p>Poor "C01-26" and/or "C01-27" terminal connection . If OK, substitute a known-good ECM and recheck.</p>	<p>Go to Step 5.</p>
5	<p>MAF sensor power supply voltage check</p> <p>1) Disconnect connector from MAF and IAT sensor with ignition switch turned OFF.</p> <p>2) Turn ON ignition switch, measure voltage between engine ground and "BLK/RED" wire terminal (2) of MAF and IAT sensor connector (1).</p> 	<p>Go to Step 6.</p>	<p>"BLK/RED" wire is open circuit.</p>
6	<p>MAF sensor ground circuit check</p> <p>1) Turn OFF ignition switch, measure resistance between "GRY" wire terminal of MAF and IAT sensor connector and engine ground.</p> <p>Is resistance below 5 Ω?</p>	<p>Go to Step 8.</p>	<p>Go to Step 7.</p>

Step	Action	Yes	No
7	Ground circuit check 1) Measure resistance between "C01-27" terminal of ECM connector and vehicle body ground. Is resistance below 5 Ω ?	"GRY" wire is open or high resistance circuit.	ECM grounds "C01-58", "C01-15", "C01-30" and/or "E01-31" circuit is open or high resistance. If wires are OK, substitute a known-good ECM and recheck.
8	MAF sensor signal circuit check 1) Disconnect connectors from ECM with ignition switch turned OFF. 2) Turn ON ignition switch, measure voltage between "GRN/BLK" wire terminal of MAF and IAT sensor connector and engine ground. Is voltage 0 V?	Go to Step 9.	"GRN/BLK" wire is shorted to others circuit.
9	MAF sensor signal circuit check 1) Turn OFF ignition switch, measure resistance between "GRN/BLK" wire terminal of MAF and IAT sensor connector and engine ground. Is resistance infinity?	Go to Step 10.	"GRN/BLK" wire is shorted to ground circuit.
10	MAF sensor signal circuit check 1) Measure resistance between "GRN/BLK" wire terminal of MAF and IAT sensor connector and "C01-26" terminal of ECM connector. Is resistance below 3 Ω ?	Faulty MAF and IAT sensor.	"GRN/BLK" wire is open or high resistance circuit.
11	Is DTC P0106 displayed?	Go to "P0106: Manifold Absolute Pressure Range / Performance".	Substitute a known-good ECM and recheck.