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Model Year: 2007	Model: Camry	Doc ID: RM000000U5B01AX
Title: 2GR-FE ENGINE CONTROL SYSTEM: SFI SYSTEM: P0100: Mass or Volume Air Flow Circuit (2007 Camry)		

DTC	P0100	Mass or Volume Air Flow Circuit
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DTC	P0102	Mass or Volume Air Flow Circuit Low Input
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DTC	P0103	Mass or Volume Air Flow Circuit High Input
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DESCRIPTION

The Mass Air Flow (MAF) meter is a sensor that measures the amount of air flowing through the valve.

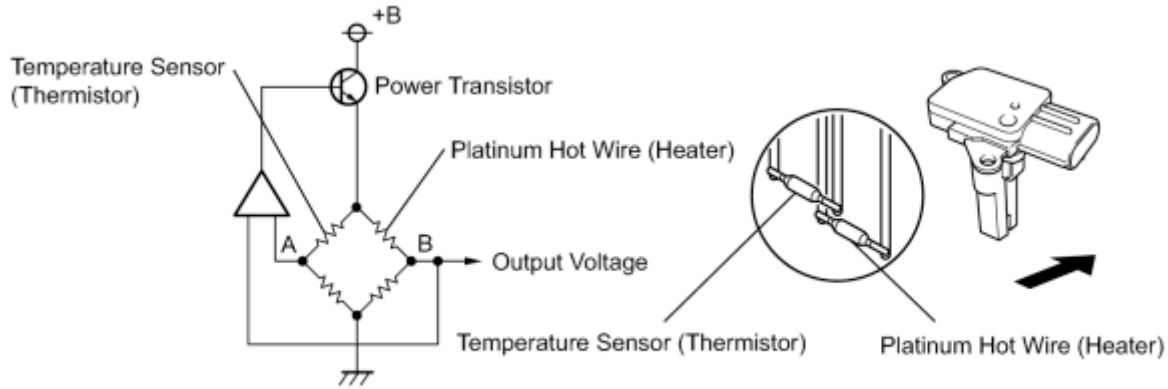
The ECM uses this information to determine the fuel injection time and to provide appropriate air-fuel ratio.

Inside the MAF meter, there is a heated platinum wire which is exposed to the flow of intake air.

By applying a specific electrical current to the wire, the ECM heats it to a given temperature. The flow of incoming air cools both the wire and an internal thermistor, affecting their resistance. To maintain a constant current value, the ECM varies the voltage applied to these components in the MAF meter. The voltage level is proportional to the airflow through the sensor, and the ECM uses it to calculate the intake air volume.

The circuit is constructed so that the platinum hot wire and the temperature sensor provide a bridge circuit, and the power transistor is controlled so that the potentials of A and B remain equal to maintain the predetermined temperature.

When any of these DTCs are set, the ECM enters fail-safe mode. During fail-safe mode, the ignition timing is calculated by the ECM, according to the engine RPM and throttle valve position. Fail-safe mode continues until a pass condition is detected.



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DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
P0100	Open or short in Mass Air Flow (MAF) meter circuit for 3 seconds	<ul style="list-style-type: none"> • Open or short in MAF meter circuit • MAF meter • ECM
P0102	Open in Mass Air Flow (MAF) meter circuit for 3 seconds	<ul style="list-style-type: none"> • Open in MAF meter circuit • Short in MAF meter circuit • MAF meter • ECM
P0103	Short in Mass Air Flow (MAF) meter circuit for 3 seconds	<ul style="list-style-type: none"> • Short in MAF meter circuit (+B circuit) • MAF meter • ECM

When any of these DTCs are set, check the air-flow rate by entering the following menus on the intelligent tester: DIAGNOSIS / ENHANCED OBD II / DATA LIST / PRIMARY / MAF.

MASS AIR FLOW RATE (GM/S)	MALFUNCTIONS
Approximately 0.0	<ul style="list-style-type: none"> • Open in Mass Air Flow (MAF) meter power source circuit • Open or short in VG circuit
271.0 or more	Open in EVG circuit

MONITOR DESCRIPTION

If there is a defect in the MAF meter or an open or short circuit, the voltage level deviates from the normal operating range. The ECM interprets this deviation as a malfunction in the MAF meter and sets a DTC.

Example:

When the sensor output voltage remains less than 0.2 V, or more than 4.9 V, for more than 3 seconds, the ECM sets a DTC.

If the malfunction is not repaired successfully, a DTC is set 3 seconds after the engine is next started.

MONITOR STRATEGY

Related DTCs	P0100: Mass air flow meter range check (Fluctuating) P0102: Mass air flow meter range check (Low voltage) P0103: Mass air flow meter range check (High voltage)
Required Sensors/Components (Main)	MAF meter
Required Sensors/Components (Sub)	Crankshaft position sensor
Frequency of Operation	Continuous
Duration	3 seconds
MIL Operation	Immediate: Engine RPM less than 4,000 rpm 2 driving cycles: Engine RPM 4,000 rpm or more
Sequence of Operation	None

TYPICAL ENABLING CONDITIONS

Monitor runs whenever following DTCs are not present	None
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TYPICAL MALFUNCTION THRESHOLDS

P0100:

Mass air flow meter voltage	Less than 0.2 V, or more than 4.9 V
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P0102:

Mass air flow meter voltage	Less than 0.2 V
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P0103:

Mass air flow meter voltage	More than 4.9 V
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