

Last Modified: 6-2-2008	5.1 C	From: 200601
Model Year: 2007	Model: Camry	Doc ID: RM000000SWG00EX
Title: 2GR-FE ENGINE CONTROL SYSTEM: SFI SYSTEM: P0450: Evaporative Emission Control System Pressure Sensor / Switch (2007 Camry)		

DTC	P0450	Evaporative Emission Control System Pressure Sensor / Switch
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DTC	P0451	Evaporative Emission Control System Pressure Sensor Range / Performance
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DTC	P0452	Evaporative Emission Control System Pressure Sensor / Switch Low Input
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DTC	P0453	Evaporative Emission Control System Pressure Sensor / Switch High Input
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DTC SUMMARY

DTC NO.	MONITORING ITEM	MALFUNCTION DETECTION CONDITION	TROUBLE AREA	DETECTION TIMING	DETECTION LOGIC
P0450	Pressure sensor voltage abnormal fluctuation	Sensor output voltage rapidly fluctuates beyond upper and lower malfunction thresholds for 0.5 seconds.	<ul style="list-style-type: none"> • Pump module • ECM 	<ul style="list-style-type: none"> • EVAP monitoring (engine switch off) • Engine switch on 	1 trip
P0451	Pressure sensor noising	Sensor output voltage fluctuates frequently in a certain time period.	<ul style="list-style-type: none"> • Pump module • Connector / wire harness (Pump module - 	<ul style="list-style-type: none"> • EVAP monitoring (engine switch off) • Engine switch running 	2 trip

DTC NO.	MONITORING ITEM	MALFUNCTION DETECTION CONDITION	TROUBLE AREA	DETECTION TIMING	DETECTION LOGIC
			<ul style="list-style-type: none"> ECM) • ECM 		
P0451	Pressure sensor stuck	Sensor output voltage does not vary in a certain time period.	<ul style="list-style-type: none"> • Pump module • Connector / wire harness (Pump module - ECM) • ECM 	<ul style="list-style-type: none"> • EVAP monitoring (engine switch off) 	2 trip
P0452	Pressure sensor voltage low	Sensor output voltage less than 0.45 V for 0.5 seconds.	<ul style="list-style-type: none"> • Pump module • Connector / wire harness (Pump module - ECM) • ECM 	<ul style="list-style-type: none"> • EVAP monitoring (engine switch off) • Engine switch on 	1 trip
P0453	Pressure sensor voltage high	Sensor output voltage more than 4.9V for 0.5 seconds.	<ul style="list-style-type: none"> • Pump module • Connector / wire harness (Pump module - ECM) • ECM 	<ul style="list-style-type: none"> • EVAP monitoring (engine switch off) • Engine switch on 	1 trip

The pressure sensor is built into the pump module.

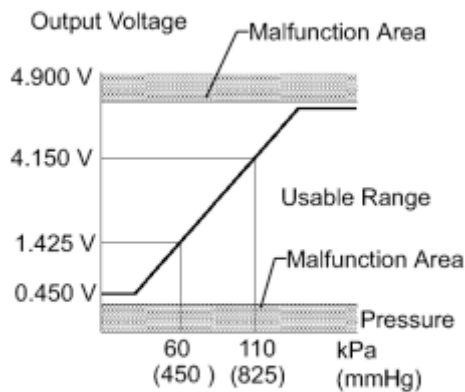
DESCRIPTION

The circuit description can be found in the EVAP (Evaporative Emission) System  .

MONITOR DESCRIPTION

1. DTC P0450: Pressure sensor voltage abnormal fluctuation

If the pressure sensor output voltage rapidly fluctuates between less than 0.45 V and more than 4.9 V, the ECM interprets this as an open or short circuit malfunction in the pressure sensor or its circuit, and stops the EVAP (Evaporative Emission) system monitor. The ECM then illuminates the MIL and sets the DTC (1 trip detection logic).

Pressure Sensor Specification:

HINT:
Standard atmospheric Pressure is 101.3 kPa

2. DTC P0451: Pressure sensor noising or stuck

If the pressure sensor output voltage fluctuates rapidly for 10 seconds, the ECM stops the EVAP system monitor. The ECM interprets this as noise from the pressure sensor, and stops the EVAP system monitor. The ECM then illuminates the MIL and sets the DTC.

Alternatively, if the sensor output voltage does not change for 10 seconds, the ECM interprets this as the sensor being stuck, and stops the monitor. The ECM then illuminates the MIL and sets the DTC.

(Both the malfunctions are detected by 2 trip detection logic).

3. DTC P0452: Pressure sensor voltage low

If the pressure sensor output voltage is below 0.45 V, the ECM interprets this as an open or short circuit malfunction in the pressure sensor or its circuit, and stops the EVAP system monitor. The ECM then illuminates the MIL and sets the DTC (1 trip detection logic).

4. DTC P0453: Pressure sensor voltage high

If the pressure sensor voltage output is 4.9 V or more, the ECM interprets this as an open or short circuit malfunction in the pressure sensor or its circuit, and stops the EVAP system monitor. The ECM then illuminates the MIL and sets the DTC (1 trip detection logic).

MONITOR STRATEGY

Related DTCs	P0450: Pressure sensor chattering P0451: Pressure sensor noise P0451: Pressure sensor stuck P0452: Pressure sensor low voltage P0453: Pressure sensor high voltage
Required Sensors/Components	Pump module
Frequency of Operation	Once per driving cycle: P0451 sensor stuck Continuous: P0451 sensor noising, P0450, P0452 and P0453
Duration	0.5 seconds: P0450, P0452, P0453 Within 15 seconds: P0451
MIL Operation	Immediate: P0450, P0452, P0453 2 driving cycles: P0451
Sequence of Operation	None

TYPICAL ENABLING CONDITIONS

P0450, P0452 and P0453 (Pressure sensor chattering, low voltage, high voltage):

Monitor runs whenever following DTCs are not present:	None
Battery voltage	8 V or more
Starter	OFF
Engine switch	ON

P0451 (Pressure sensor noise):

Atmospheric pressure	70 kPa (525 mmHg) to 110 kPa (825 mmHg)
Battery voltage	10.5 V or more
Intake air temperature	4.4 to 35°C (40 to 95°F)
EVAP pressure sensor malfunction (P0450, P0452, P0453)	Not detected
Either of following conditions is met:	1 or 2
1. Engine	Running
2. Time after key off	5, 7 or 9.5 hours

P0451 (Pressure sensor stuck):

Atmospheric pressure	Less than 70 kPa (525 mmHg), or 110 kPa (825 mmHg) or more
Battery voltage	10.5 V or more
Intake air temperature	4.4 to 35°C (40 to 95°F)
EVAP pressure sensor malfunction (P0450, P0452, P0453)	Not detected
Time after key off	5, 7 or 9.5 hours

TYPICAL MALFUNCTION THRESHOLDS

P0450: Pressure sensor chattering

EVAP Pressure	Less than 42.11 kPa (315.82 mmHg), or more than 123.761 kPa (928.207 mmHg)
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P0451: Pressure sensor noise

Frequency that EVAP pressure change is 0.3 kPa or more	10 times or more in 10 seconds
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P0451: Pressure sensor stuck

EVAP pressure change during reference pressure	Less than 0.65 kPa (4.87 mmHg)
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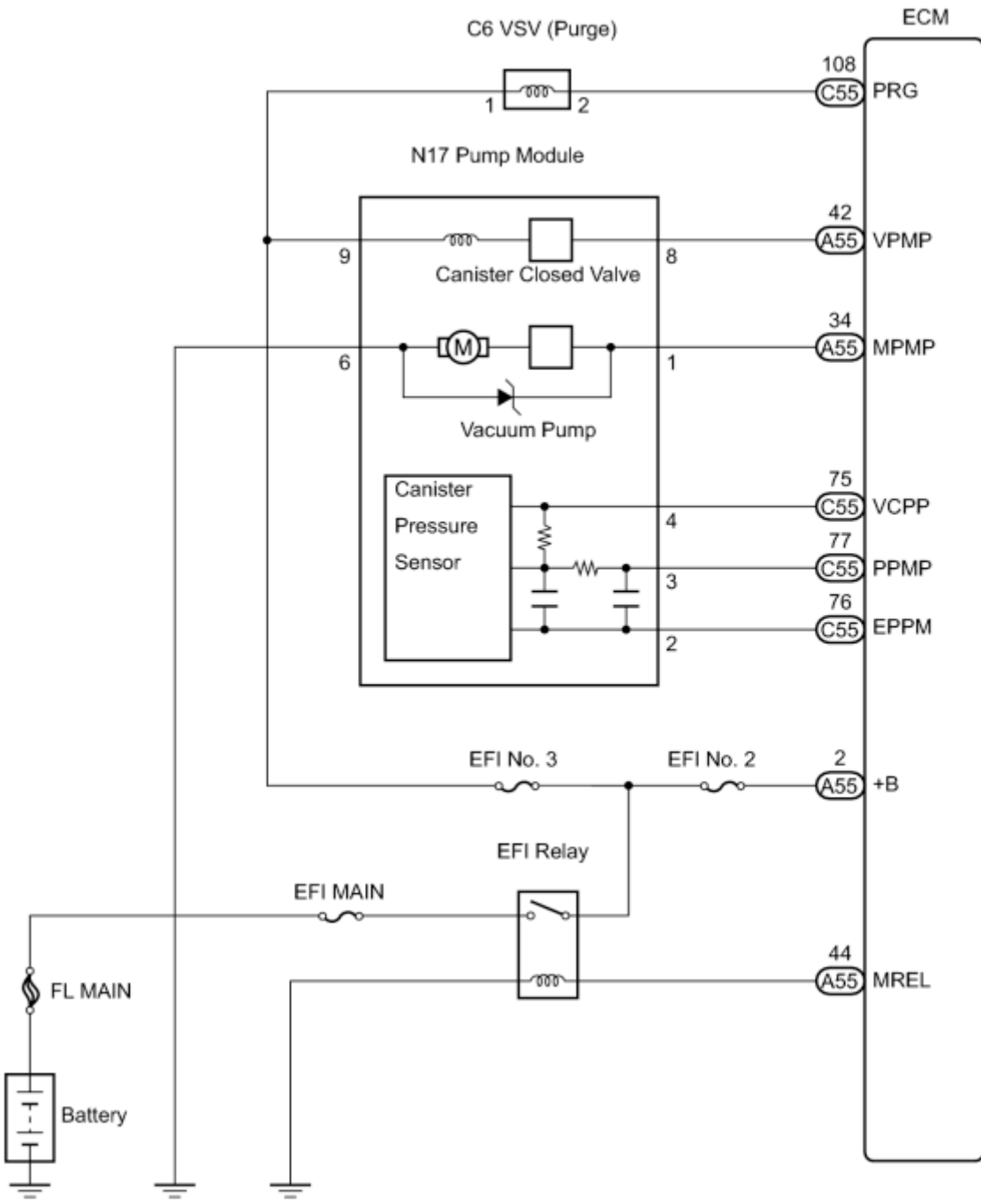
P0452: Pressure sensor low voltage

EVAP Pressure	Less than 42.11 kPa (315.82 mmHg)
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P0453: Pressure sensor high voltage

EVAP Pressure	More than 123.761 kPa (928.207 mmHg)
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WIRING DIAGRAM



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INSPECTION PROCEDURE

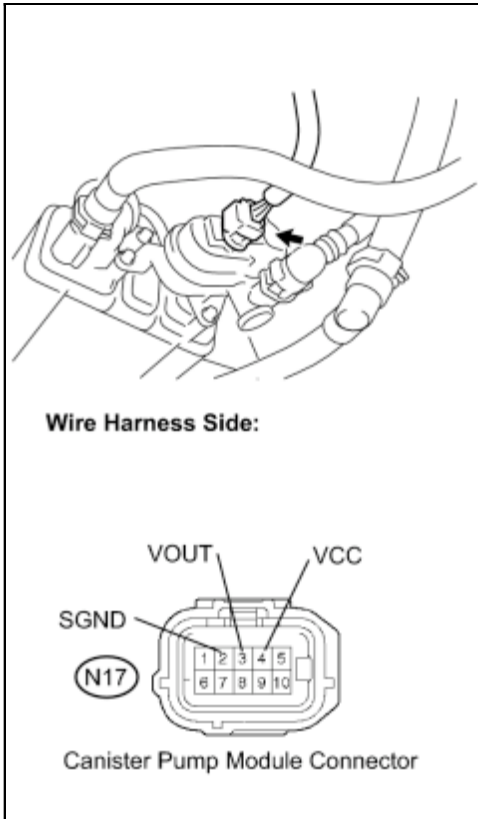
NOTICE:

- When a vehicle is brought into a workshop, leave it as is. Do not change the vehicle condition. For example, do not tighten the fuel tank cap.

- Do not disassemble the pump module.
- The intelligent tester is required to conduct the following diagnostic troubleshooting procedure.

PROCEDURE

1.	CHECK HARNESS AND CONNECTOR (PUMP MODULE - ECM)
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(a) Disconnect the N17 canister connector.

(b) Turn the ignition switch on (IG).

(c) Measure the voltage and resistance according to the value(s) in the table below.

Standard voltage:

TESTER CONNECTION	SPECIFIED CONDITION
N17-4 - Body ground	4.5 to 5.0 V
N17-3 - Body ground	4.5 to 5.0 V
N17-2 - Body ground	100 Ω or less

Result:

TEST RESULT	SUSPECTED TROUBLE AREA	PROCEED TO
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