

P2127, P2128 APP SENSOR

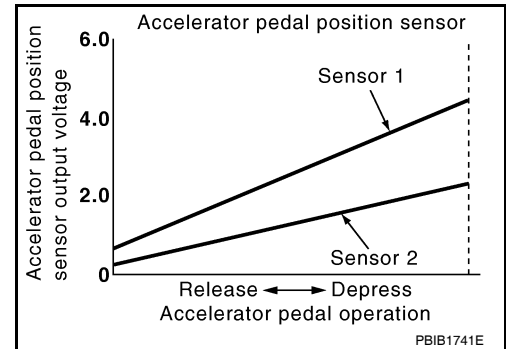
Description

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The accelerator pedal position sensor is installed on the upper end of the accelerator pedal assembly. The sensor detects the accelerator position and sends a signal to the ECM.

Accelerator pedal position sensor has two sensors. These sensors are a kind of potentiometer which transform the accelerator pedal position into output voltage, and emit the voltage signal to the ECM. The ECM judges the current opening angle of the accelerator pedal from these signals and controls the throttle control motor based on these signals.

Idle position of the accelerator pedal is determined by the ECM receiving the signal from the accelerator pedal position sensor. The ECM uses this signal for the engine operation such as fuel cut.



DTC Logic

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DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
P2127	Accelerator pedal position sensor 2 circuit low input	An excessively low voltage from the APP sensor 2 is sent to ECM.	<ul style="list-style-type: none"> • Harness or connectors (APP sensor 2 circuit is open or shorted.) [Crankshaft position sensor (POS) circuit is shorted.] (Refrigerant pressure sensor circuit is shorted.) (EVAP control system pressure sensor circuit is shorted.) • Accelerator pedal position sensor (APP sensor 2) • Crankshaft position sensor (POS) • Refrigerant pressure sensor • EVAP control system pressure sensor
P2128	Accelerator pedal position sensor 2 circuit high input	An excessively high voltage from the APP sensor 2 is sent to ECM.	

DTC CONFIRMATION PROCEDURE

1. PRECONDITIONING

If DTC Confirmation Procedure has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

TESTING CONDITION:

Before performing the following procedure, confirm that battery voltage is more than 8 V at idle.

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine and let it idle for 1 second.
2. Check DTC.

Is DTC detected?

- YES >> Go to [EC-404, "Diagnosis Procedure"](#).
 NO >> INSPECTION END

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< COMPONENT DIAGNOSIS >

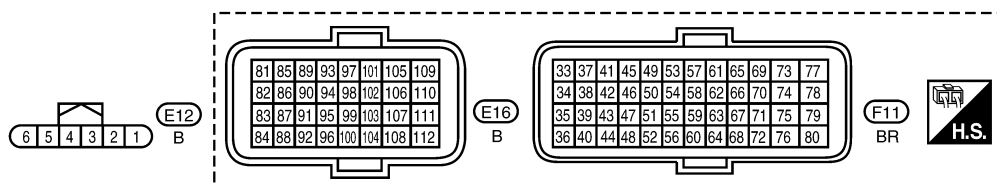
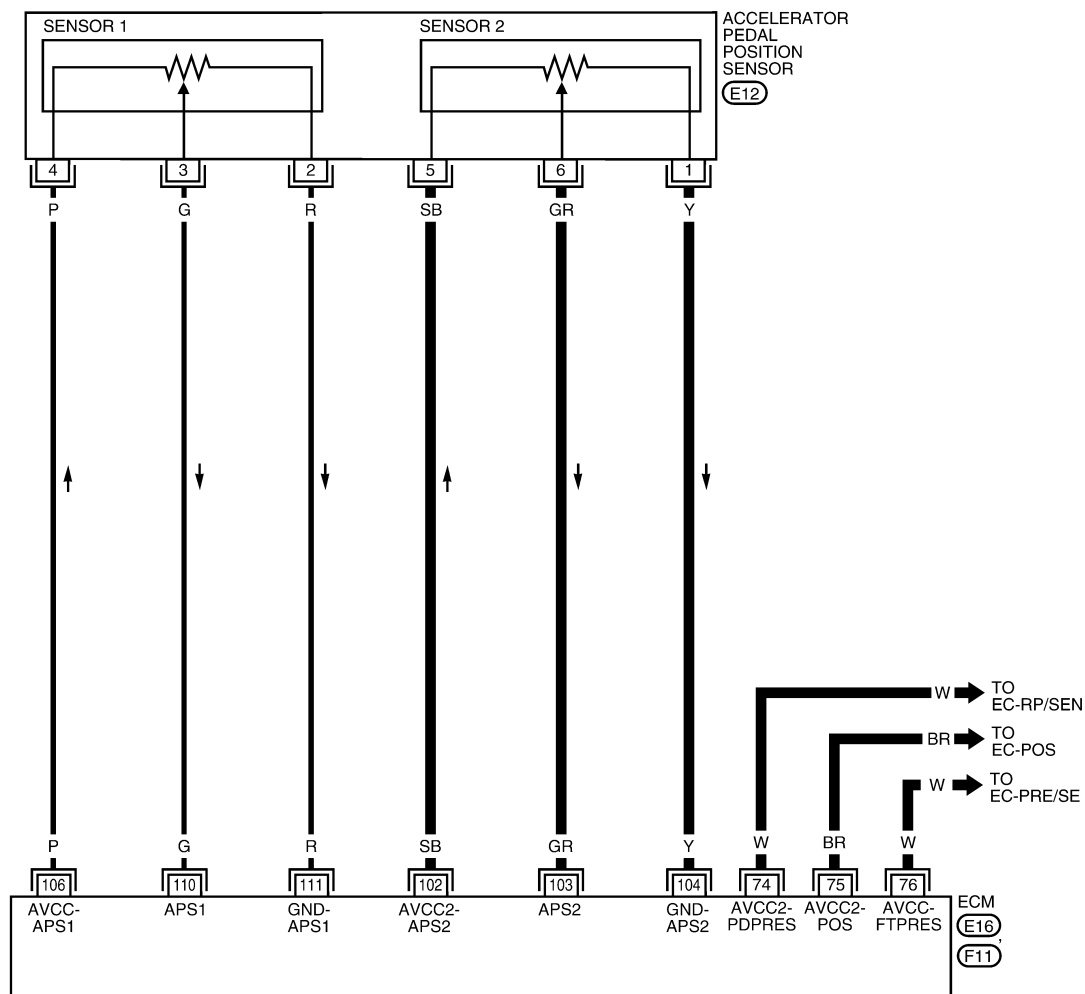
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Wiring Diagram

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EC-APPS2-01

— : DETECTABLE LINE FOR DTC
 — : NON-DETECTABLE LINE FOR DTC



BBWA3074E

Diagnosis Procedure

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1. CHECK GROUND CONNECTION

1. Turn ignition switch OFF.
2. Check ground connections E15, E24. Refer to [EC-125, "Ground Inspection"](#).

Is the inspection result normal?

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EC-404

2009 Versa

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< COMPONENT DIAGNOSIS >

- YES >> GO TO 2.
NO >> Repair or replace ground connection.

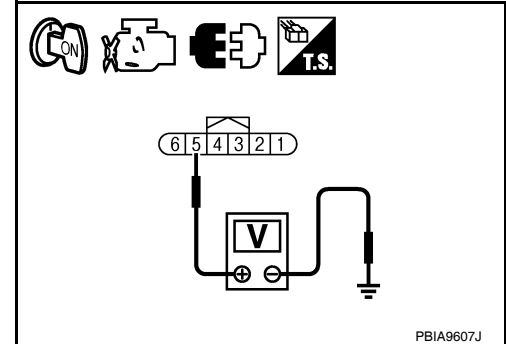
2.CHECK APP SENSOR 2 POWER SUPPLY CIRCUIT-I

1. Disconnect accelerator pedal position (APP) sensor harness connector.
2. Turn ignition switch ON.
3. Check the voltage between APP sensor harness connector and ground.

APP sensor		Ground	Voltage
Connector	Terminal		
E12	5	Ground	Approx. 5 V

Is the inspection result normal?

- YES >> GO TO 6.
NO >> GO TO 3.



3.CHECK APP SENSOR 2 POWER SUPPLY CIRCUIT-II

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between APP sensor harness connector and ECM harness connector.

APP sensor		ECM		Continuity
Connector	Terminal	Connector	Terminal	
E12	5	E16	102	Existed

Is the inspection result normal?

- YES >> GO TO 4.
NO >> Repair open circuit or short to ground or short to power in harness or connectors.

4.CHECK SENSOR POWER SUPPLY CIRCUIT

Check harness for short to power and short to ground, between the following terminals.

ECM		Sensor		
Connector	Terminal	Name	Connector	Terminal
F11	74	Refrigerant pressure sensor	E17	3
	75	CKP sensor (POS)	F15	1
	76	EVAP control system pressure sensor	B104	3
E16	102	APP sensor	E12	5

Is the inspection result normal?

- YES >> GO TO 5.
NO >> Repair short to ground or short to power in harness or connectors.

5.CHECK COMPONENTS

Check the following.

- Crankshaft position sensor (POS) (Refer to [EC-267, "Component Inspection".](#))
- EVAP control system pressure sensor (Refer to [EC-314, "Component Inspection".](#))
- Refrigerant pressure sensor (Refer to [EC-458, "Diagnosis Procedure".](#))

Is the inspection result normal?

- YES >> GO TO 10.
NO >> Replace malfunctioning component.

6.CHECK APP SENSOR 2 GROUND CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch OFF.
2. Disconnect ECM harness connector.
3. Check the continuity between APP sensor harness connector and ECM harness connector.

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< COMPONENT DIAGNOSIS >

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APP sensor		ECM		Continuity
Connector	Terminal	Connector	Terminal	
E12	1	E16	104	Existed

4. Also check harness for short to ground and short to power.

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair open circuit or short to ground or short to power in harness or connectors.

7.CHECK APP SENSOR 2 INPUT SIGNAL CIRCUIT FOR OPEN AND SHORT

1. Check the continuity between APP sensor harness connector and ECM harness connector.

APP sensor		ECM		Continuity
Connector	Terminal	Connector	Terminal	
E12	6	E16	103	Existed

2. Also check harness for short to ground and short to power.

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair open circuit or short to ground or short to power in harness or connectors.

8.CHECK APP SENSOR

Refer to [EC-406, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 10.

NO >> GO TO 9.

9.REPLACE ACCELERATOR PEDAL ASSEMBLY

1. Replace accelerator pedal assembly.
2. Perform [EC-407, "Special Repair Requirement"](#).

>> INSPECTION END

10.CHECK INTERMITTENT INCIDENT

Refer to [EC-120, "Diagnosis Procedure"](#).

>> INSPECTION END

Component Inspection

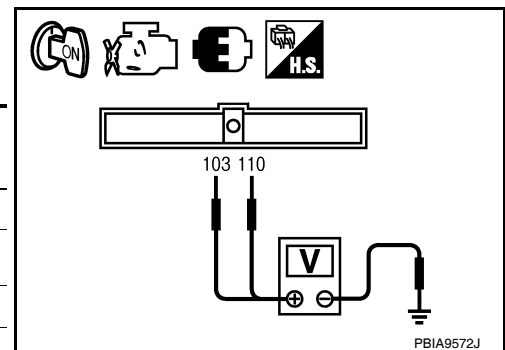
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1.CHECK ACCELERATOR PEDAL POSITION SENSOR

1. Reconnect all harness connectors disconnected.
2. Turn ignition switch ON.
3. Check the voltage between ECM harness connector and ground.

ECM		Ground	Condition	Voltage
Connector	Terminal			
E16	110 (APP sensor 1 signal)	Ground	Accelerator pedal	Fully released
				Fully depressed
	103 (APP sensor 2 signal)			Fully released
				Fully depressed

Is the inspection result normal?



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< COMPONENT DIAGNOSIS >

YES >> INSPECTION END
NO >> GO TO 2.

2.REPLACE ACCELERATOR PEDAL ASSEMBLY

1. Replace accelerator pedal assembly.
2. Perform [EC-407, "Special Repair Requirement"](#).

>> INSPECTION END

Special Repair Requirement

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1.PERFORM ACCELERATOR PEDAL RELEASED POSITION LEARNING

Refer to [EC-31, "ACCELERATOR PEDAL RELEASED POSITION LEARNING : Special Repair Requirement"](#).

>> GO TO 2.

2.PERFORM THROTTLE VALVE CLOSED POSITION LEARNING

Refer to [EC-31, "THROTTLE VALVE CLOSED POSITION LEARNING : Special Repair Requirement"](#).

>> GO TO 3.

3.PERFORM IDLE AIR VOLUME LEARNING

Refer to [EC-32, "IDLE AIR VOLUME LEARNING : Special Repair Requirement"](#).

>> END