AG: Accelerator Pedal Position (APP) Sensor

AG: Introduction

AG1 PRELIMINARY DIAGNOSIS FOR DIAGNOSTIC TROUBLE CODES (DTCS) P060D, P2122, P2123, P2127, P2128, OR P2138

- Carry out a visual inspection.
- Retrieve and record all DTCs.
- Record the freeze frame data.
- Clear the DTCs.
- Carry out the self-test.

Are DTCs P060D, P2122, P2123, P2127, P2128 or P2138 present?

Yes	No
GO to AG2 .	Unable to duplicate the condition. CHECK for a loose connection, and damaged or corroded terminals. WIGGLE the harness attempting to recreate the concern. REPAIR as necessary. REFER to Section 3, No Diagnostic Trouble Codes (DTCs) Present Symptom Chart Index , if a driveability concern exists.

AG2 CHECK THE ACCELERATOR PEDAL FOR OBSTRUCTION

- Key ON, engine OFF.
- Press the accelerator pedal fully to the floor and release.

Does the pedal move freely to the floor and back?

Yes	No
GO to AG3 .	ISOLATE and REPAIR the obstruction. CLEAR the DTCs. REPEAT the self-test.

AG3 CHECK THE APP SENSOR SIGNAL VOLTAGE RANGES FOR THE ACCELERATOR PEDAL FULLY APPLIED AND RELEASED POSITIONS

- Access the PCM and monitor the APP1 and APP2 PIDs.
- Press the accelerator pedal fully to the floor and release.

Pedal Position	APP1	APP2
Fully Applied	0.28 - 0.97	3.45 - 4.71
Fully Released	3.43 - 4.69	1.13 - 1.88

Are both APP sensor signals out of range for the pedal fully applied and released positions?

Yes	No
GO to AG4 .	GO to AG5 .

AG4 CHECK THE VREF VOLTAGE TO APP SENSOR

- Key in OFF position.
- APP Sensor connector disconnected.
- Key ON, engine OFF.
- Measure the voltage between:

(+) APP Sensor Connector, Harness Side	(-) APP Sensor Connector, Harness Side
VREF - Pin 6, 7	SIGRTN - Pin 1, 3

Are the voltages between 4 - 6 V?

Yes	No
GO to AG5 .	GO to Pinpoint Test B .

AG5 CHECK THE ACCELERATOR PEDAL CONFIGURATION AND APP SENSOR HOUSING

- Check the configuration of the accelerator pedal and determine the color of the APP sensor housing.

Is the vehicle equipped with an adjustable accelerator pedal?

Yes	No
GO to AG6 .	For vehicles with a fixed accelerator pedal and a white APP sensor housing, GO to AG7 . For all others, GO to AG8 .

AG6 VEHICLES WITH AN ADJUSTABLE ACCELERATOR PEDAL: CHECK THE APP SENSOR FOR THE CORRECT RESISTANCE

Note: Make sure the accelerator pedal is fully released when taking the resistance measurements.

- Key in OFF position.
- APP Sensor connector disconnected.

- Measure the resistance between:

(+) APP Sensor Connector, Component Side	(-) APP Sensor Connector, Component Side	Minimum Resistance (ohms)	Maximum Resistance (ohms)
APP1	VREF	550	1,390
APP1	SIGRTN	1,030	2,590
APP1	APPS2	2,125	5,335
APP2	VREF	1,785	4,480
APP2	SIGRTN	1,475	3,705
VREF	SIGRTN	780	1,955

Are all the resistances within specifications?

Yes	No
For DTCs P060D, P2122 or P2123, GO to AG9 . For DTCs P2127 or P2128, GO to AG13 . For DTC P2138, GO to AG17 .	INSTALL a new APP sensor. REFER to the Workshop Manual Section 310-02, Acceleration Control. CLEAR the DTCs. REPEAT the self-test.

AG7 VEHICLES WITH A FIXED ACCELERATOR PEDAL AND A WHITE APP SENSOR HOUSING: CHECK THE APP SENSOR FOR THE CORRECT RESISTANCE

Note: Make sure the accelerator pedal is fully released when taking the resistance measurements.

- Key in OFF position.
- APP Sensor connector disconnected.
- Measure the resistance between:

(+) APP Sensor Connector, Component Side	(-) APP Sensor Connector, Component Side	Minimum Resistance (ohms)	Maximum Resistance (ohms)
APP1	VREF	1,080	1,865
APP1	SIGRTN	1,535	2,860
APP1	APPS2	2,820	5,225
APP2	VREF	1,995	3,700
APP2	SIGRTN	1,625	3,170
VREF	SIGRTN	805	1,500

Are all the resistances within specifications?

Yes	No

For DTCs P060D, P2122 or P2123, GO to AG9 . For DTCs P2127 or P2128, GO to AG13 . For DTC P2138, GO to AG17 .	INSTALL a new APP sensor. REFER to the Workshop Manual Section 310-02, Acceleration Control. CLEAR the DTCs. REPEAT the self-test.

AG8 ALL OTHERS: CHECK THE APP SENSOR FOR THE CORRECT RESISTANCE

Note: Make sure the accelerator pedal is fully released when taking the resistance measurements.

- Key in OFF position.
- APP Sensor connector disconnected.
- Measure the resistance between:

(+) APP Sensor Connector, Component Side	(-) APP Sensor Connector, Component Side	Minimum Resistance (ohms)	Maximum Resistance (ohms)
APP1	VREF	600	1,370
APP1	SIGRTN	720	1,660
APP1	APP2	1,300	2,960
APP2	VREF	750	1,720
APP2	SIGRTN	660	1,520
VREF	SIGRTN	200	470

Are all the resistances within specifications?

Yes	No
For DTCs P060D, P2122 or P2123, GO to AG9 . For DTCs P2127 or P2128, GO to AG13 . For DTC P2138, GO to AG17 .	INSTALL a new APP sensor. REFER to the Workshop Manual Section 310-02, Acceleration Control. CLEAR the DTCs. REPEAT the self-test.

AG9 CHECK THE APP1 CIRCUIT FOR AN OPEN IN THE HARNESS

- PCM-B connector disconnected.
- Measure the resistance between:

(+) APP Sensor Connector, Harness Side	(-) PCM-B Connector, Harness Side
APP1 - Pin 2	APP1 - Pin 14

Is the resistance less than 5 ohms?

Yes	No
GO to AG10 .	REPAIR the open circuit. CLEAR the DTCs. REPEAT the self-test.

AG10 CHECK THE APP1 CIRCUIT FOR A SHORT TO GROUND IN THE HARNESS

- Measure the resistance between:

(+) APP Sensor Connector, Harness Side	(-)
APP1 - Pin 2	Ground

Is the resistance greater than 10K ohms?

Yes	No
GO to AG11 .	REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.

AG11 CHECK THE APP1 CIRCUIT FOR A SHORT IN THE HARNESS

- Measure the resistance between:

(+) APP Sensor Connector, Harness Side	(-) APP Sensor Connector, Harness Side
APP1 - Pin 2	SIGRTN - Pin 1, 3
APP1 - Pin 2	VREF - Pin 6, 7

Are the resistances greater than 10K ohms?

Yes	No
GO to AG12 .	REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.

AG12 CHECK THE APP1 CIRCUIT FOR A SHORT TO VOLTAGE IN THE HARNESS

- Key ON, engine OFF.
- Measure the voltage between:

(+) APP Sensor Connector, Harness Side	(-)
APP1 - Pin 2	Ground

Is any voltage present?

Yes	No
	For DTC P060D, GO to AG13 .

REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.	For all others, GO to AG19 .

AG13 CHECK THE APP2 CIRCUIT FOR AN OPEN IN THE HARNESS

- PCM-B connector disconnected.
- Measure the resistance between:

(+) APP Sensor Connector, Harness Side	(-) PCM-B Connector, Harness Side
APP2 - Pin 5	APP2 - Pin 28

Is the resistance less than 5 ohms?

Yes	No
GO to AG14 .	REPAIR the open circuit. CLEAR the DTCs. REPEAT the self-test.

AG14 CHECK THE APP2 CIRCUIT FOR A SHORT TO GROUND IN THE HARNESS

- Measure the resistance between:

(+) APP Sensor Connector, Harness Side	(-)
APP2 - Pin 5	Ground

Is the resistance greater than 10K ohms?

Yes	No
GO to AG15 .	REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.

AG15 CHECK THE APP2 CIRCUIT FOR A SHORT IN THE HARNESS

- Measure the resistance between:

(+) APP Sensor Connector, Harness Side	(-) APP Sensor Connector, Harness Side
APP2 - Pin 5	SIGRTN - Pin 1, 3
APP2 - Pin 5	VREF - Pin 6, 7

Are the resistances greater than 10K ohms?

Yes	No
GO to AG16 .	REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.

AG16 CHECK THE APP2 CIRCUIT FOR A SHORT TO VOLTAGE IN THE HARNESS

- Key ON, engine OFF.
- Measure the voltage between:

(+) APP Sensor Connector, Harness Side	(-)
APP2 - Pin 5	Ground

Is any voltage present?

Yes	No
REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.	For DTC P060D, GO to AG17 . For all others, GO to AG19 .

AG17 CHECK FOR A SHORT BETWEEN THE APP1 AND APP2 CIRCUITS

- Key in OFF position.
- PCM-B connector disconnected.
- Measure the resistance between:

(+) APP Sensor Connector, Harness Side	(-) APP Sensor Connector, Harness Side
APP1 - Pin 2	APP2 - Pin 5

Is the resistance greater than 10K ohms?

Yes	No
For DTC P060D, GO to AG18 . For all others, GO to AG19 .	REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.

AG18 CHECK THE PCM FOR THE LATEST CALIBRATION

- Program the PCM to the latest calibration.
- Key ON, engine running.
- Increase the engine speed to 2,000 RPM for 5 seconds.
- Carry out the KOEO and KOER self-test.

Is DTC P060D present?

Yes	No
GO to AG19 .	The test is complete and no concerns are present.

AG19 CHECK FOR CORRECT PCM OPERATION

- Disconnect all the PCM connectors.
- Visually inspect for:
  - pushed out pins
  - corrosion
- Connect all the PCM connectors and make sure they seat correctly.
- Carry out the PCM self-test and verify the concern is still present.

Is the concern still present?

Yes	No
INSTALL a new PCM. REFER to Section 2, Flash Electrically Erasable Programmable Read Only Memory (EEPROM) .	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.