

DH: Throttle Position (TP) Sensor [DH: Introduction](#)**DH1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS)**

Are DTCs P0068, P0121, P0122, P0123, P1120, or P1124 present?

Yes	No
For DTC P0068, GO to DH18 . For DTC P0121, GO to DH24 . For KOEO and KOER DTC P0122, GO to DH14 . For continuous memory DTC P0122, GO to DH13 . For DTC P0123, GO to DH9 . For DTC P1120, GO to DH4 . For DTC P1124, GO to DH2 .	For all others, GO to Section 4, Diagnostic Trouble Code (DTC) Charts and Descriptions .

DH2 KOEO AND KOER DTC P1124: CHECK FOR ANY OTHER DTC

- Clear the DTCs.
- Carry out the PCM self-test.

Is DTC P0405 present?

Yes	No
DISREGARD the current diagnostic trouble code (DTC) at this time. DIAGNOSE the next DTC. GO to Section 4, Diagnostic Trouble Code (DTC) Charts and Descriptions .	GO to DH3 .

DH3 CHECK FOR A STUCK THROTTLE PLATE OR LINKAGE

- Ignition OFF.
- Visually inspect the throttle linkage and throttle plate for binding or sticking.
- Verify the throttle plate and linkage is at closed throttle position.

Does the throttle move freely and return to a closed throttle position?

Yes	No
The throttle plate and linkage are OK. GO to DH9 .	REPAIR as necessary. CLEAR the DTCs. REPEAT the self-test.

DH4 DTC P1120: CHECK THE TP CIRCUIT FOR FRAYED WIRES OR CORROSION ON THE CONNECTORS

- Ignition OFF.
- Carry out a visual inspection of the pins on the harness connector at the TP sensor for corrosion.
- Carry out a visual inspection of the harness wires between the TP sensor and the PCM for insulation fraying and corrosion.

Is a concern present?

Yes	No
REPAIR as necessary. CLEAR the DTCs. REPEAT the self-test.	GO to DH5 .

DH5 CHECK FOR A STUCK TP SENSOR

- Ignition ON, engine OFF.
- Slowly move the throttle from the closed throttle position to the wide open throttle position and observe the TP PID.
- Access the PCM and monitor the TP PID.

Is the voltage greater than 4.5 V?

Yes	No
GO to DH22 .	GO to DH6 .

DH6 CHECK THE VOLTAGE BETWEEN THE VREF AND SIGRTN CIRCUITS AT THE TP SENSOR HARNESS CONNECTOR

- TP Sensor connector disconnected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) TP Sensor Connector, Harness Side	(-) TP Sensor Connector, Harness Side
VREF	SIGRTN

Is the voltage between 4.5 - 5.5 V?

Yes	No
GO to DH7 .	GO to Pinpoint Test C .

DH7 CHECK THE TP CIRCUIT FOR AN OPEN IN THE HARNESS

- Ignition OFF.
- PCM connector disconnected.
- Measure the resistance between:

(+) PCM Connector, Harness Side	(-) TP Sensor Connector, Harness Side
TP - Pin E61	TP

Is the resistance less than 5 ohms?

Yes	No
GO to DH8 .	REPAIR the open circuit. CLEAR the DTCs. REPEAT the self-test.

DH8 CHECK THE TP SENSOR VOLTAGE TO THE PCM

- PCM connector connected.
- TP Sensor connector connected.
- Ignition ON, engine running.
- Idle the engine for 2 minutes.
- Ignition OFF.
- Ignition ON, engine OFF.
- Access the PCM and monitor the TP PID.
- Slowly move the throttle from the closed throttle position to the wide open throttle position and observe the TP PID.

Is the voltage between 0.17 - 0.49 V?

Yes	No
INSTALL a new TP sensor. REFER to the Workshop Manual Section 303-14, Electronic Engine Controls. CLEAR the DTCs. REPEAT the self-test.	If DTC P1120 is still present, GO to DH22 .

DH9 DTC P0123 OR DTC P1124: INDUCE THE OPPOSITE TP SENSOR VOLTAGE

- TP Sensor connector disconnected.
- Ignition ON, engine OFF.
- Access the PCM and monitor the TP PID.

Is the voltage less than 0.17 V?

Yes	No
GO to DH10 .	GO to DH11 .

DH10 CHECK THE VOLTAGE BETWEEN THE VREF AND SIGRTN CIRCUITS AT THE TP SENSOR VEHICLE HARNESS CONNECTOR

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

(+) TP Sensor Connector, Harness Side	(-) TP Sensor Connector, Harness Side
VREF	SIGRTN

Is the voltage between 4.5 - 5.5 V?

Yes	No
INSTALL a new TP sensor. REFER to the	

Workshop Manual Section 303-14, Electronic Engine Controls.

CLEAR the DTCs. REPEAT the self-test.

GO to Pinpoint Test [C](#).

DH11 CHECK THE CIRCUIT FOR A SHORT TO VREF AND VPWR IN THE HARNESS

- Ignition OFF.
- PCM connector disconnected.
- Measure the resistance between:

(+) PCM Connector, Harness Side	(-) PCM Connector, Harness Side
VPWR - Pin B35	TP - Pin E61
VREF - Pin E57	TP - Pin E61

Are the resistances greater than 10K ohms?

Yes	No
GO to DH12 .	REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.

DH12 CHECK FOR AN INTERMITTENT SHORT TO VOLTAGE IN THE TP CIRCUIT

- Measure the resistance between:

(+) PCM Connector, Harness Side	(-) PCM Connector, Harness Side
VPWR - Pin B35, B36	TP - Pin E61
VREF - Pin B40, E57	TP - Pin E61

- Observe the digital multimeter (DMM) for an indication of a concern while shaking, wiggling, and bending the TP circuit between the TP sensor and the PCM.

Is a concern present?

Yes	No
REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.	GO to DH26 .

DH13 CONTINUOUS MEMORY DTC P0122: CHECK THE TP CIRCUIT FOR AN INTERMITTENT CONCERN

- Ignition ON, engine OFF.
- Clear the PCM DTCs.
- Ignition ON, engine running.
- Retrieve the continuous memory DTCs.

Is DTC P0122 present?

Yes	No
GO to DH14 .	GO to Pinpoint Test Z .

DH14 KOEO AND KOER DTC P0122: CHECK THE VOLTAGE BETWEEN THE VREF AND SIGRTN CIRCUITS AT THE TP SENSOR VEHICLE HARNESS CONNECTOR

- Ignition OFF.
- TP Sensor connector disconnected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) TP Sensor Connector, Harness Side	(-) TP Sensor Connector, Harness Side
VREF	SIGRTN

Is the voltage between 4.5 - 5.5 V?

Yes	No
GO to DH15 .	GO to Pinpoint Test C .

DH15 CHECK THE TP CIRCUIT FOR AN OPEN IN THE HARNESS

- Ignition OFF.
- PCM connector disconnected.
- Measure the resistance between:

(+) PCM Connector, Harness Side	(-) TP Sensor Connector, Harness Side
TP - Pin E61	TP

Is the resistance less than 5 ohms?

Yes	No
GO to DH16 .	REPAIR the open circuit. CLEAR the DTCs. REPEAT the self-test.

DH16 CHECK THE TP CIRCUIT FOR A SHORT TO PWRGND OR SIGRTN IN THE HARNESS

- Measure the resistance between:

(+) PCM Connector, Harness Side	(-) PCM Connector, Harness Side
TP - Pin E61	PWRGND - Pin B47, B48, B49, B50
TP - Pin E61	SIGRTN - Pin E58

Are the resistances greater than 10K ohms?

Yes	No
GO to DH17 .	REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.

DH17 INDUCE THE OPPOSITE TP SENSOR VOLTAGE

- PCM connector connected.

- Connect a 5 amp fused jumper wire between the following:

Point A TP Sensor Connector, Harness Side	Point B TP Sensor Connector, Harness Side
VREF	TP

- Ignition ON, engine OFF.
- Access the PCM and monitor the TP PID.

Is the voltage greater than 4.65 V?

Yes	No
INSTALL a new TP sensor. REFER to the Workshop Manual Section 303-14, Electronic Engine Controls. CLEAR the DTCs. REPEAT the self-test.	GO to DH26 .

DH18 DTC P0068: CHECK THE RATIONALITY BETWEEN THE TP AND MAF SENSORS

- Attempt to start the engine.

Does the engine start?

Yes	No
GO to DH19 .	CHECK for major leaks, cracks and openings between the MAF sensor and the throttle body. REPAIR as necessary. CLEAR the DTCs. REPEAT the self-test. If OK, GO to Pinpoint Test A .

DH19 CHECK THE TP SENSOR FOR MECHANICAL OPERATION

- Ignition ON, engine OFF.
- Access the PCM and monitor the TP PID.
- Slowly move the throttle from the closed throttle position to the wide open throttle position and observe the TP PID.

Is the voltage between 0.49 - 4.65 V?

Yes	No
GO to DH20 .	INSTALL a new TP sensor. REFER to the Workshop Manual Section 303-14, Electronic Engine Controls. CLEAR the DTCs. REPEAT the self-test.

DH20 CHECK THE TP SENSOR SIGNAL HIGH VERSUS THE ENGINE LOAD WHILE DRIVING THE VEHICLE

- Ignition ON, engine running.
- Access the PCM and monitor the TP PID.

- Access the PCM and monitor the LOAD PID.
- Drive the vehicle, exercising the throttle and TP sensor.

Is the TP PID greater than 2.44 volts and the LOAD PID less than 30%?

Yes	No
<p>LISTEN for air noise around the MAF sensor and throttle body while the engine is running. REPAIR as necessary. If OK, INSTALL a new TP sensor. REFER to the Workshop Manual Section 303-14, Electronic Engine Controls.</p> <p>CLEAR the DTCs. REPEAT the self-test.</p>	<p>GO to DH21.</p>

DH21 CHECK THE TP SENSOR SIGNAL LOW VERSUS THE ENGINE LOAD WHILE DRIVING THE VEHICLE

- Ignition ON, engine running.
- Access the PCM and monitor the TP PID.
- Access the PCM and monitor the LOAD PID.
- Drive the vehicle while exercising the throttle and TP sensor near higher gears (preferably overdrive).

Is the TP PID less than 0.24 volt and the LOAD PID greater than 55%?

Yes	No
<p>If continuous memory DTC P0068 is present, INSTALL a new MAF sensor. REFER to the Workshop Manual Section 303-14, Electronic Engine Controls.</p> <p>CLEAR the DTCs. REPEAT the self-test.</p>	<p>Unable to duplicate or identify the concern at this time.</p> <p>GO to Pinpoint Test Z.</p>

DH22 CHECK FOR AN INTERMITTENT TP SIGNAL

- Ignition ON, engine running.
- Access the PCM and monitor the TP PID.
- Increase the engine speed to 1,500 RPM for 10 seconds.
- Lightly tap on the TP sensor and wiggle the harness connector to simulate road shock.

Is the voltage between 0.49 V - 4.65 V?

Yes	No
<p>GO to DH23.</p>	<p>INSPECT the TP sensor connector. REPAIR as necessary.</p> <p>If OK, INSTALL a new TP sensor. REFER to the Workshop Manual Section 303-14, Electronic Engine Controls.</p> <p>CLEAR the DTCs. REPEAT the self-test.</p>

DH23 CHECK THE TP SENSOR HARNESS FOR INTERMITTENT OPENS OR SHORTS

- Ignition OFF.

- Ignition ON, engine OFF.
- Access the PCM and monitor the TP PID.
- Grasp the vehicle harness closest to the TP sensor connector.
- Shake and bend a small section of the harness all the way to the bulkhead.
- Wiggle, shake, and bend the harness from the bulkhead to the PCM.

Is the voltage between 0.49 V - 4.65 V?

Yes	No
Unable to duplicate or identify the concern at this time. GO to Pinpoint Test Z .	ISOLATE the concern and REPAIR as necessary. CLEAR the DTCs. REPEAT the self-test.

DH24 DTC P0121: CHECK FOR OBSTRUCTION OR STICKING CONCERNS

NOTICE: Do not attempt to clean the throttle bore and plate area. Cleaning damages the throttle body assembly.

Note: Conditions of sticking or obstruction can either be within the cables or throttle body assembly.

- Disconnect the accelerator cable and speed control cable from the throttle body linkage.
- Rotate the throttle body linkage.

Does the throttle body rotate freely without a sticking, binding, or grabbing condition?

Yes	No
INSPECT the cable(s). REPAIR as necessary. REPEAT the self-test. If DTC P0121 is still present, GO to DH25 .	INSTALL a new throttle body assembly. REFER to the Workshop Manual Section 303-04, Fuel Charging and Controls. CLEAR the DTCs. REPEAT the self-test.

DH25 CHECK THE FUNCTIONALITY OF THE THROTTLE POSITION SENSOR

- Ignition ON, engine OFF.
- Access the PCM and monitor the TP PID.
- While slowly pressing the accelerator from the closed throttle position to the wide open throttle position, observe the TP PID.

Does the TP PID display a smooth reading during accelerator movement?

Yes	No
Unable to duplicate or identify the concern at this time. GO to Pinpoint Test Z .	INSTALL a new TP sensor. REFER to the Workshop Manual Section 303-14, Electronic Engine Controls. CLEAR the DTCs. REPEAT the self-test.

DH26 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) , Programming the VID Block for a Replacement PCM.	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.
