

## DTC P1682

### DIAGNOSTIC INSTRUCTIONS

- Always perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **STRATEGY BASED DIAGNOSIS** for an overview of the diagnostic approach.
- **DIAGNOSTIC PROCEDURE INSTRUCTIONS** provide an overview of each diagnostic category.

### DTC DESCRIPTOR

This diagnostic procedure supports the following DTC:

#### DTC P1682

Ignition 1 Switch Circuit 2

### CIRCUIT DESCRIPTION

The throttle actuator control (TAC) system uses an ignition voltage supply separate from the engine control module (ECM) supply. If the ECM detects a voltage difference between the two circuits, this DTC will set.

### CONDITIONS FOR RUNNING THE DTC

- The ignition is ON.
- DTC P1682 runs continuously when the above condition is met.

### CONDITIONS FOR SETTING THE DTC

- The ignition 1 voltage is less than 10 volts.
- The above condition is present for more than 1.6 seconds.

### ACTION TAKEN WHEN THE DTC SETS

- The control module stores the DTC information into memory when the diagnostic runs and fails.
- The malfunction indicator lamp (MIL) will not illuminate.
- The control module records the operating conditions at the time the diagnostic fails. The control module stores this information in the Failure Records.
- The driver information center, if equipped, may display a message.

### CONDITIONS FOR CLEARING THE DTC

- A current DTC Last Test Failed clears when the diagnostic runs and passes.
- A history DTC clears after 40 consecutive warm-up cycles, if no failures are reported by this or any other non-emission related diagnostic.
- Clear the DTC with a scan tool.

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Step	Action	Values	Yes	No
<b>Schematic Reference: <u>Engine Controls Schematics</u></b> <b>Connector End View Reference: <u>Engine Control Module (ECM) Connector End Views</u> or <u>Engine Controls Connector End Views</u></b>				
1	Did you perform the Diagnostic System Check - Vehicle?	-	Go to Step 2	Go to <b><u>Diagnostic System Check - Vehicle</u></b>
2	1. Turn ON the ignition, with the engine OFF.  <b>IMPORTANT:</b> <b>Operating the throttle blade with the Throttle Blade Control function of the scan tool may cause additional DTCs to set. Do not attempt to diagnose DTCs set during this function.</b>  2. Command the throttle blade to 100 percent and back to 0 percent with a scan tool. Exit the throttle blade control function.  Did the throttle blade angle follow the commanded angle?	-	Go to Step 3	Go to Step 4
3	1. Observe the Freeze Frame/Failure Records for this DTC. 2. Turn OFF the ignition for 30 seconds. 3. Start the engine. 4. Operate the vehicle within the Conditions for Running the DTC. You may also operate the vehicle within the conditions that you observed from the Freeze Frame/Failure Records.  Does the DTC fail this ignition?	-	Go to Step 4	Go to <b><u>Intermittent Conditions</u></b>
4	Probe both sides of the electronic temperature control ECM/ETC fuse with a test lamp connected to ground. Does the test lamp illuminate on both sides of the fuse?	-	Go to Step 5	Go to Step 6
5	Probe both sides of the engine control module (ECM)/PCM fuse with a test lamp connected to ground. Does the test lamp illuminate on both sides of	-		

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	the fuse?		Go to <b>Step 10</b>	Go to <b>Step 8</b>
6	Test the ECM/PCM ignition 1 voltage circuit for a short to ground. Refer to <b><u>Circuit Testing</u></b> and <b><u>Wiring Repairs</u></b> . Did you find and correct the condition?	-	Go to <b>Step 16</b>	Go to <b>Step 7</b>
7	1. Test the supply voltage to the ECM/PCM fuse for an open or high resistance. Refer to <b><u>Circuit Testing</u></b> and <b><u>Wiring Repairs</u></b> . 2. If a short to ground is found, replace the affected fuse. Did you find and correct the condition?	-	Go to <b>Step 16</b>	Go to <b>Step 10</b>
8	Test the ECM/PCM ignition 1 voltage circuit for a short to ground. Refer to <b><u>Circuit Testing</u></b> and <b><u>Wiring Repairs</u></b> . Did you find and correct the condition?	-	Go to <b>Step 16</b>	Go to <b>Step 9</b>
9	1. Test the supply voltage to the ECM/PCM fuse for an open or high resistance. Refer to <b><u>Circuit Testing</u></b> and <b><u>Wiring Repairs</u></b> . 2. If a short to ground is found, replace the affected fuse. Did you find and correct the condition?	-	Go to <b>Step 16</b>	Go to <b>Step 10</b>
10	1. Disconnect the ECM connector containing the ECM/PCM ignition 1 voltage. 2. Measure the voltage on the ECM/PCM ignition 1 voltage circuit with a DMM connected to ground. Does the voltage measure near the specified value?	12 V	Go to <b>Step 11</b>	Go to <b>Step 12</b>
11	1. Disconnect the ECM connector containing the ECM/PCM ignition 1 voltage. 2. Measure the voltage on the ECM ignition 1 voltage circuit with a DMM connected to ground. Does the voltage measure near the specified value?	12 V	Go to <b>Step 14</b>	Go to <b>Step 13</b>
12	Test the ECM/PCM ignition 1 voltage circuit for an open or high resistance. Refer to <b><u>Circuit Testing</u></b> and <b><u>Wiring Repairs</u></b> . Did you find and correct the condition?	-	Go to <b>Step 16</b>	Go to <b>Step 13</b>
	Test the ECM/PCM ignition 1 voltage circuit for			

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13	<p>an open or high resistance. Refer to <b><u>Circuit Testing</u></b> and <b><u>Wiring Repairs</u></b> .</p> <p>Did you find and correct the condition?</p>	-	Go to <b>Step 16</b>	Go to <b>Step 14</b>
14	<p>Test for poor connections at the ECM connectors. Refer to <b><u>Testing for Intermittent Conditions and Poor Connections</u></b> and <b><u>Connector Repairs</u></b> .</p> <p>Did you find and correct the condition?</p>	-	Go to <b>Step 16</b>	Go to <b>Step 15</b>
15	<p>Replace the ECM. Refer to <b><u>Control Module References</u></b> for replacement, setup, and programming.</p> <p>Did you complete the replacement?</p>	-	Go to <b>Step 16</b>	-
16	<ol style="list-style-type: none"> <li>1. Clear the DTCs with a scan tool.</li> <li>2. Turn OFF the ignition for 30 seconds.</li> <li>3. Start the engine.</li> <li>4. Operate the vehicle within the Conditions for Running the DTC. You may also operate the vehicle within the conditions that you observed from the Freeze Frame/Failure Records.</li> </ol> <p>Did the DTC fail this ignition?</p>	-	Go to <b>Step 2</b>	Go to <b>Step 17</b>
17	<p>Observe the Capture Info with a scan tool.</p> <p>Are there any DTCs that have not diagnosed?</p>	-	Go to <b><u>Diagnostic Trouble Code (DTC) List - Vehicle</u></b>	System OK