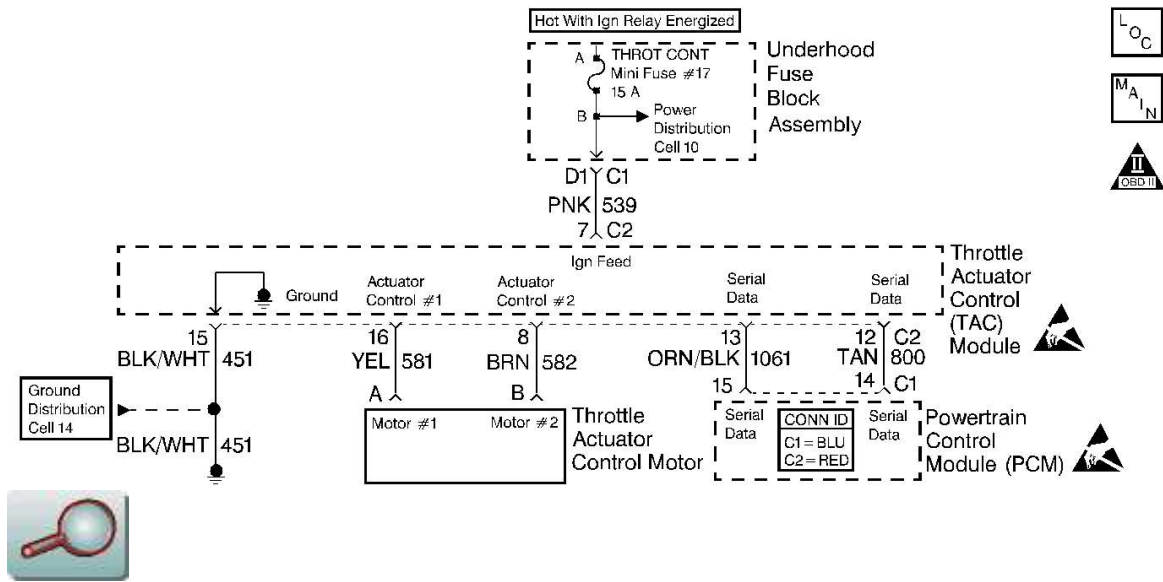


# DTC P1518 Throttle Actuator Control (TAC) Module Serial Data Circuit



## Circuit Description

The TAC Module and the PCM communicate via a dedicated serial data circuit. This serial data circuit is separate from any other serial data circuit on the vehicle. Accurate transmitting and receiving of serial data requires not only good circuit integrity but also adequate system voltage. This diagnostic monitors the accuracy of the serial data transmitted between the TAC Module and the PCM. If the PCM detects a loss of data or invalid data, this DTC sets.

## Conditions for Running the DTC

- The ignition switch is in the crank or run position.
- The ignition voltage is greater than 5.23 volts.

## Conditions for Setting the DTC

- Invalid or missing serial data messages are detected for a predetermined amount of time.
- All of the above conditions met for less than 1 second.

## Action Taken When the DTC Sets

- The PCM will illuminate the Malfunction Indicator Light (MIL) when this diagnostic runs and fails.
- The Reduced Engine Power message displays on the drivers information center.
- The PCM records the operating conditions at the time during which the diagnostic fails. The PCM stores this information in the Freeze Frame and/or Failure Records.

- If no other TAC System DTCs are set, the TAC System will operate in Reduced Engine Power mode. If certain TAC System DTCs are set at the same time, the TAC System either defaults to a more tightly restricted mode of operation if the TAC determines that limited safe operation is possible, or the TAC commands the engine to shut down.
- If DTC P0606 is set with DTC P1518, the TAC commands an engine shut down.

### Conditions for Clearing the MIL/DTC

- The PCM turns OFF the MIL after three consecutive drive trips during which the diagnostic runs and does not fail.
- A last test failed (Current DTC) will clear when the diagnostic runs and does not fail.
- A History DTC clears after forty consecutive warm-up cycles if this or any other emission related diagnostic does not report any failures.
- Clear the MIL/DTC information with a scan tool.

### Diagnostic Aids

#### **Important**

- Remove any debris from the PCM/TAC module connector surfaces before servicing the PCM/TAC module. Inspect the PCM/TAC module connector gaskets when diagnosing/replacing the modules. Ensure that the gaskets are installed correctly. The gaskets prevent contaminate intrusion into the PCM/TAC modules.
- For any test that requires probing the PCM or a component harness connector, use the Connector Test Adapter Kit [J 35616-A](#) . Using this kit prevents damage to the harness/component terminals. Refer to [Using Connector Test Adapters](#) in *Wiring Systems*.
- DTC P1518 sets if the battery voltage is low. If the customer's concern is slow cranking or no crank because battery voltage is low, ignore DTC P1518. Clear any DTCs from memory that may have set from the low battery voltage condition.
- DTC P1518 sets when there is a short to B+ on the TAC module ground circuit. Inspect the fuses for the circuits that are in the TAC module harness (i.e. cruise, brake). An inspection of the fuses may lead you to the circuit that is shorted to the TAC module ground circuit.
- DTC P1518 sets if the TAC module ignition feed circuit is shorted to a B+ supply circuit. The TAC module stays powered-up when the ignition switch is turned off. When the ignition switch is turned on, the TAC module is powered-up before the PCM. DTC P1518 sets because no communication is detected by the TAC module from the PCM. Inspect related circuits for being shorted to a B+ supply circuit.
- Inspect the TAC Module power and ground circuits and the TAC Module/PCM serial data circuits for intermittent connections.
- The following problems may cause an intermittent:
  - Poor connections; Refer to [Intermittents and Poor Connections Diagnosis](#) in *Wiring Systems*.
  - Corrosion
  - Mis-routed harness
  - Rubbed through wire insulation
  - Broken wire inside the insulation
  - Inspect the TAC module connectors for signs of water intrusion. When this occurs, multiple DTCs should be set and no circuit or component problems can be located.
- When the TAC module detects a problem within the TAC System, more than one TAC System related DTC may set. This is due to the many redundant tests run continuously on this system. Locating and repairing one individual problem may correct more than one DTC. Keep this in mind when reviewing captured DTC info.
- For an intermittent condition, refer to [Symptoms](#) .

## THROT CONT Fuse Underhood Electrical Center Terminal Identification

Front of Vehicle			
Left Side of Vehicle	Ignition Voltage	TAC Module	Right Side of Vehicle

### Test Description

The numbers below refer to the step numbers on the diagnostic table.

2. This step determines if the IGN relay is supplying a voltage to the THROT CONT fuse. If only one side of the fuse is powered, the fuse is open. Replace the fuse after you perform the diagnostic table.
4. This step determines if an internal PCM Processor is failing.

If this DTC does not Fail This Ignition, continue to monitor this DTC status while moving related harnesses and connectors. Refer to Diagnostic Aids if the harness movement causes this DTC to set.

5. Increasing the engine speed to 3000 RPM aids in locating a shorted Throttle Actuator Motor control circuit. Depending on the polarity of the Throttle Actuator Motor transistors, this DTC may not set. The Throttle Actuator Motor is a bi-directional DC motor. Raising the engine speed changes the polarity of the transistors in the Throttle Actuator Motor and this DTC sets. This occurs because one set of the transistors are low (0 volts) and the other set are high (B+). Therefore, if one set of transistors are at a low voltage and the corresponding circuit is shorted low, DTC P1518 will not set. When the polarity of the transistors change this DTC sets. If this DTC does not Fail This Ignition, continue to monitor this DTC status while moving related harnesses and connectors. Refer to Diagnostic Aids if the harness movement causes this DTC to set.
9. This step determines if the ignition feed circuit to the TAC is shorted to ground. If the circuit is shorted to a ground, repair the grounded circuit and replace the THROT CONT fuse.
35. When a condition is detected within the TAC System, more than one TAC System related DTC may set. This is due to the many redundant tests run continuously on this system. It is possible that locating and repairing one individual condition may correct more than one DTC. Keep this in mind when reviewing captured DTC info.

### DTC P1518 - PCM to TAC Module Serial Data Circuit

Step	Action	Value(s)	Yes	No
1	Did you perform the Powertrain On-Board Diagnostic (OBD) System Check?	--	<a href="#">Go to Step 2</a>	Go to <a href="#">Powertrain On Board Diagnostic (OBD) System Check</a>
2	1. Turn ON the ignition leaving the engine OFF. 2. Remove the cover from the underhood electrical center. 3. Probe both sides of the THROT CONT fuse using the test lamp <a href="#">J 34142-B</a> connected to ground. Refer to <a href="#">Probing Electrical Connectors</a> in Wiring Systems.  Does the test lamp illuminate on at least one side of the fuse?	--	<a href="#">Go to Step 3</a>	Go to <a href="#">Ignition Relay Diagnosis</a>
	1. Turn OFF the ignition			

3	<p>2. Probe the THROT CONT fuse using the test lamp <a href="#">J 34142-B</a> connected to ground.</p> <p>Does the test lamp illuminate?</p>	--	<a href="#">Go to Step 31</a>	<a href="#">Go to Step 4</a>
4	<p>Install a scan tool.</p> <p>Is DTC P0606 is also set?</p>	--	Go to <a href="#">DTC P0606 Control Module Internal Performance</a>	<a href="#">Go to Step 5</a>
5	<p><b>Important</b></p> <p>If the Driver Information Center is displaying Reduced Engine Power, go to step 6.</p> <p>1. Idle the engine. 2. Increase the engine speed to 3000 RPM, if possible. 3. Monitor the Diagnostic Trouble Code (DTC) option using the scan tool.</p> <p>Did this DTC fail this ignition?</p>	--	<a href="#">Go to Step 6</a>	Go to Diagnostic Aids
6	<p>1. Turn OFF the ignition.</p> <p><b>Important</b></p> <p>Disconnecting the Throttle Actuator Motor harness connector causes additional DTCs to set.</p> <p>2. Disconnect the Throttle Actuator Motor harness connector. 3. Turn ON the ignition leaving the engine OFF. 4. Measure the voltage at both circuits of the Throttle Actuator Motor harness connector using the DMM <a href="#">J 39200</a> .</p> <p>Are both circuits above the specified value?</p>	8V	<a href="#">Go to Step 12</a>	<a href="#">Go to Step 7</a>
7	<p>1. Turn OFF the ignition. 2. Test the resistance of the Throttle Actuator Motor circuits from the harness connector to battery ground using the DMM <a href="#">J 39200</a> .</p> <p>Is the resistance within the specified range?</p>	0-5ohms	<a href="#">Go to Step 10</a>	<a href="#">Go to Step 8</a>
8	<p>1. Turn OFF the ignition. 2. Remove the THROT CONT fuse. 3. Test continuity from the TAC side of the fuse terminal to the battery ground using the DMM <a href="#">J 39200</a> . Refer to Diagnostic Aids for terminal identification table.</p> <p>Is continuity indicated?</p>	--	<a href="#">Go to Step 9</a>	<a href="#">Go to Step 11</a>
9	<p>1. Disconnect the TAC module 16-way connector. Refer to <a href="#">PCM/TAC Module Replacement</a> . 2. Test continuity from the TAC side of the fuse terminal to battery ground using the DMM <a href="#">J 39200</a> .</p>	--		

	Is continuity indicated?		<a href="#">Go to Step 22</a>	<a href="#">Go to Step 32</a>
10	<ol style="list-style-type: none"> <li>1. Disconnect the TAC module 16-way connector. Refer to <a href="#">PCM/TAC Module Replacement</a> .</li> <li>2. Test continuity from the Throttle Actuator Motor harness connector to battery ground using the DMM <a href="#">J 39200</a> .</li> </ol>	--		
	Is continuity indicated?		<a href="#">Go to Step 23</a>	<a href="#">Go to Step 32</a>
11	<ol style="list-style-type: none"> <li>1. Turn OFF the ignition.</li> <li>2. Disconnect the TAC module 16-way connector. Refer to <a href="#">PCM/TAC Module Replacement</a> .</li> <li>3. Test continuity between the TAC side of the fuse terminal to the ignition feed circuit of the TAC module 16-way harness connector using the DMM <a href="#">J 39200</a> .</li> </ol>	--		
	Is continuity indicated?		<a href="#">Go to Step 32</a>	<a href="#">Go to Step 24</a>
12	<ol style="list-style-type: none"> <li>1. Turn OFF the ignition.</li> <li>2. Disconnect the TAC module 16-way connector. Refer to <a href="#">PCM/TAC Module Replacement</a> .</li> <li>3. Turn ON the ignition leaving the engine OFF.</li> <li>4. Measure the voltage at both circuits at the Throttle Actuator Motor harness connector using the DMM <a href="#">J 39200</a> .</li> </ol>	0V		
	Are both circuits near the specified value?		<a href="#">Go to Step 13</a>	<a href="#">Go to Step 25</a>
13	<ol style="list-style-type: none"> <li>1. Turn OFF the ignition</li> <li>2. Disconnect the TAC module 10 way connector. Refer to <a href="#">PCM/TAC Module Replacement</a> .</li> </ol> <p>Test for continuity of both Throttle Actuator Motor circuits to all other TAC module terminals using the DMM <a href="#">J 39200</a> .</p> <p>Does the DMM display continuity from either Throttle Actuator Motor circuit to any other TAC module circuit?</p>	--		
			<a href="#">Go to Step 30</a>	<a href="#">Go to Step 14</a>
14	<p>Test for continuity from the TAC module ground circuit to battery ground using the DMM <a href="#">J 39200</a> .</p> <p>Is continuity indicated?</p>	--		
			<a href="#">Go to Step 15</a>	<a href="#">Go to Step 26</a>
15	<p>Measure the voltage at the serial data circuits at the TAC module 16-way harness connector using the DMM <a href="#">J 39200</a> .</p> <p>Are both serial data circuits within the specified voltage range?</p>	0-4.5V		
			<a href="#">Go to Step 16</a>	<a href="#">Go to Step 18</a>
16	<ol style="list-style-type: none"> <li>1. Turn OFF the ignition.</li> <li>2. Test the resistance from the serial data circuits at the TAC module 16-way connector to battery ground using the DMM <a href="#">J 39200</a> .</li> </ol> <p>Does the DMM display OL for both circuits?</p>	--		
			<a href="#">Go to Step 20</a>	<a href="#">Go to Step 17</a>

17	<p>1. Disconnect the PCM connector C1 located on the same side as the manufacturer's logo. Refer to <a href="#">PCM/TAC Module Replacement</a> .</p> <p>2. Test the resistance from the serial data circuits at the TAC module 16-way connector to battery ground using the DMM <a href="#">J 39200</a> .</p> <p>Is the continuity within the specified range for either circuit?</p>	0-5ohms	<a href="#">Go to Step 27</a>	<a href="#">Go to Step 18</a>
18	<p>1. Disconnect the PCM. Refer to <a href="#">PCM/TAC Module Replacement</a> .</p> <p>2. Test for continuity from both serial data circuits to all other circuits at the PCM and TAC module connectors using the DMM <a href="#">J 39200</a> .</p> <p>Does the DMM display continuity from either serial data circuit to any other circuit?</p>	--	<a href="#">Go to Step 30</a>	<a href="#">Go to Step 19</a>
19	<p>Measure the voltage of both serial data circuits at the TAC module 16-way connector using the DMM <a href="#">J 39200</a> .</p> <p>Is voltage indicated on either circuit?</p>	--	<a href="#">Go to Step 28</a>	<a href="#">Go to Step 33</a>
20	<p>1. Disconnect the PCM connector C1 located on the same side as the manufacturer's logo. Refer to <a href="#">PCM/TAC Module Replacement</a> .</p> <p>2. Test the continuity of each serial data circuit between the TAC module 16-way connector to the PCM harness connector using the DMM <a href="#">J 39200</a> .</p> <p>Is continuity indicated for both serial data circuits?</p>	--	<a href="#">Go to Step 21</a>	<a href="#">Go to Step 29</a>
21	<p>1. Reconnect the PCM. Refer to <a href="#">PCM/TAC Module Replacement</a> .</p> <p>2. Turn On the ignition leaving the engine OFF.</p> <p>3. Measure the voltage at the serial data circuit at the TAC module 16-way harness connector using the DMM <a href="#">J 39200</a> .</p> <p>Is the voltage at the specified value?</p>	0V	<a href="#">Go to Step 33</a>	<a href="#">Go to Step 32</a>
22	<p>Repair the TAC module ignition feed circuit for a short to ground. Refer to <a href="#">Wiring Repairs</a> in Wiring Systems.</p> <p>Is the action complete?</p>	--	<a href="#">Go to Step 34</a>	--
23	<p>Repair the Throttle Actuator Motor circuit for a short to ground on the affected circuit. Refer to <a href="#">Wiring Repairs</a> in Wiring Systems.</p> <p>Is the action complete?</p>	--	<a href="#">Go to Step 34</a>	--
24	<p>Repair the TAC module ignition feed circuit for an open. Refer to <a href="#">Wiring Repairs</a> in Wiring Systems.</p> <p>Is the action complete?</p>	--	<a href="#">Go to Step 34</a>	--
	<p>Repair the Throttle Actuator Motor circuits for a short to</p>			

25	voltage on the affected circuit. Refer to <a href="#">Wiring Repairs</a> in Wiring Systems. Is the action complete?	--	<a href="#">Go to Step 34</a>	--
26	Repair the TAC module ground circuit for an open. Refer to <a href="#">Wiring Repairs</a> in Wiring Systems. Is the action complete?	--	<a href="#">Go to Step 34</a>	--
27	Repair the serial data circuit for a short to ground on the affected circuit. Refer to <a href="#">Wiring Repairs</a> in Wiring Systems. Is the action complete?	--	<a href="#">Go to Step 34</a>	--
28	Repair the serial data circuit for a short to voltage on the affected circuit. Refer to <a href="#">Wiring Repairs</a> in Wiring Systems. Is the action complete?	--	<a href="#">Go to Step 34</a>	--
29	Repair the serial data circuit for an open on the affected circuit. Refer to <a href="#">Wiring Repairs</a> in Wiring Systems. Is the action complete?	--	<a href="#">Go to Step 34</a>	--
30	Repair the circuits that display continuity. Refer to <a href="#">Wiring Repairs</a> in Wiring Systems. Is the action complete?	--	<a href="#">Go to Step 34</a>	--
31	Repair the ignition feed circuit for a short to voltage. Refer to <a href="#">Wiring Repairs</a> in Wiring Systems. Is the action complete?	--	<a href="#">Go to Step 34</a>	--
32	Replace the TAC Module. Refer to <a href="#">PCM/TAC Module Replacement</a> . Is the action complete?	--	<a href="#">Go to Step 34</a>	--
33	<b>Important</b> <b>Program the replacement PCM. Refer to <a href="#">PCM/TAC Module Replacement</a> .</b> Replace the PCM. Is the action complete?	--	<a href="#">Go to Step 34</a>	--
34	<ol style="list-style-type: none"> <li>1. Select the Diagnostic Trouble Codes (DTC) option and the Clear DTC Information option using the scan tool.</li> <li>2. Idle the engine at the normal operating temperature.</li> <li>3. Select the Diagnostic Trouble Codes (DTC) option and the Specific DTC option, then enter the DTC number using the scan tool.</li> <li>4. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text, if applicable.</li> </ol>	--		

	Does the scan tool indicate that this diagnostic ran and passed?		<a href="#">Go to Step 35</a>	<a href="#">Go to Step 2</a>
<a href="#">35</a>	Select the Capture Info option and the Review Info option using the scan tool. Does the scan tool display any DTCs that you have not diagnosed?	--	Go to the applicable DTC table	System OK

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