DTC P1516

CIRCUIT DESCRIPTION
The predicted throttle position is compared to the actual throttle position. The 2 values should be within a calibrated range of each other. Both the powertrain control module (PCM) and the throttle actuator control (TAC) module redundantly monitor the predicted and the actual throttle position. This DTC sets if the TAC detects an out of range condition between the predicted and the actual throttle position.

DTC DESCRIPTOR
This diagnostic procedure supports the following DTC:
DTC P1516 Throttle Actuator Control (TAC) Module Throttle Actuator Position Performance

CONDITIONS FOR RUNNING THE DTC

- DTC U0107 is not set.
- The ignition switch is in the crank or the run position.
- The ignition voltage is greater than **5.23 volts** .
- The TAC system is not in the battery saver mode.
- DTC P1516 runs continuously once the above conditions are met.

CONDITIONS FOR SETTING THE DTC

- The TAC module detects that the predicted and actual throttle positions are not within a calibrated range of each other.OR
- The PCM or the TAC module cannot determine the throttle position.OR
- Both throttle position (TP) sensors are out of range.
- One of the above conditions are present for more than **0.003 second** .

ACTION TAKEN WHEN THE DTC SETS

- The control module illuminates the malfunction indicator lamp (MIL) when the diagnostic runs and fails.
- The control module records the operating conditions at the time the diagnostic fails. The control module stores this information in the Freeze Frame and/or the Failure Records.
- The control module commands the TAC system to operate in the Reduced Engine Power mode.
- A message center or an indicator displays Reduced Engine Power.
- Under certain conditions the control module commands the engine OFF.

CONDITIONS FOR CLEARING THE MIL/DTC

- The control module turns OFF the malfunction indicator lamp (MIL) after 3 consecutive ignition cycles that the diagnostic runs and does not fail.
- 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 emission related diagnostic.
- Clear the MIL and the DTC with a scan tool.

DIAGNOSTIC AIDS

- Inspect the TAC module connectors for signs of water intrusion. When water intrusion occurs, multiple DTCs could be set with no DTC circuit or component conditions found during diagnostic testing.
- Ensure that the starting and charging systems are operating properly. Low system voltage can cause this DTC to set.
- When the TAC module detects a condition within the TAC system, more than 1 TAC system related DTC may set. This is due to the many redundant tests that run continuously on this system. Locating and repairing 1 individual condition may correct more than 1 DTC. Disconnecting components during testing may set additional DTCs. Keep this in mind when reviewing the Stored Capture Info.
- For an intermittent, refer to Intermittent Conditions. See: Initial Inspection and Diagnostic Overview\Diagnostic Strategies\Intermittent Conditions

TEST DESCRIPTION

Step	Action	Yes	No
1	Did you perform the Diagnostic System Check – Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	Are DTCs P1518 and P2135 set?	Go to DTC P2135	Go to Step 3
3	Is DTC P2135 set?	Go to DTC P2135	Go to Step 4
4	1. Turn OFF the ignition for 15 seconds. 2. Turn ON the ignition, with the engine OFF. 3. Observe the throttle position (TP) sensor 1 and the TP sensor 2 angle parameters. 4. Slowly depress the accelerator pedal to wide open throttle (WOT) and slowly return the pedal to the released position. Does the scan tool indicate both angle parameters increasing as the pedal is depressed to WOT and decreasing as the pedal is released?	Go to Diagnostic Aids	Go to Step 5
5	1. Turn OFF the ignition. 2. Disconnect the throttle actuator motor harness connector. 3. Remove the air inlet duct from the throttle body. 4. Inspect the throttle body and the throttle plate for debris, damage, and tampering that could cause the throttle plate to bind. If debris is found, clean the throttle body and repair the source of contamination. If the throttle body and/or throttle plate is damaged, replace the throttle body. Did you find and correct the condition?	Go to Step 17	Go to Step 6
6	Manually, slowly open the throttle plate to WOT and return the plate back to the closed position several times. Does the throttle plate move smoothly without binding in both directions?	Go to Step 7	Go to Step 14
7	1. Turn ON the ignition, with the engine OFF. 2. Manually, slowly open the throttle blade to WOT and return the plate to the closed throttle position while observing the TP sensor 1 and TP sensor 2 angle parameters on the scan tool. Does the scan tool indicate both angle parameters increasing as the throttle blade is moved to WOT and decreasing as the throttle blade is moved to the closed position?	Go to Step 8	Go to Step 15
8	1. Turn OFF the ignition. 2. Disconnect the throttle actuator control (TAC) module harness connector containing the TAC motor circuits. 3. Turn ON the ignition, with the engine OFF. 4. Test the TAC motor circuits for a short to voltage, with a DMM. Did you find and correct the condition?	Go to Step 17	Go to Step 9
9	Test each TAC motor circuit for an open or for high resistance, with a DMM. Did you find and correct the condition?	Go to Step 17	Go to Step 10
10	Test each TAC motor circuit for a short to ground, with a DMM. Did you find and correct the condition?	Go to Step 17	Go to Step 11
11	1. Disconnect the other TAC module harness connector. 2. Test for a short between each TAC motor circuit and all other TAC module circuits, with a DMM. Did you find and correct the condition?	Go to Step 17	Go to Step 12

Steps 1-11

Step	Action	Yes	No
12	1. Turn OFF the ignition. 2. Reconnect the TAC module. 3. Connect a test lamp between the 2 TAC motor circuits at the TAC motor harness connector. 4. Turn ON the ignition, with the engine OFF and observe the test lamp. Did the test lamp illuminate briefly when the ignition was turned ON?	Go to Step 13	Go to Step 15
13	Inspect for poor connections at the TAC motor harness connector. Did you find and correct the condition?	Go to Step 17	Go to Step 14
14	Replace the throttle body assembly. Did you complete the replacement?	Go to Step 17	—
15	Inspect for poor connections at the TAC module harness connectors. Did you find and correct the condition?	Go to Step 17	Go to Step 16
16	Replace the TAC module. Did you complete the replacement?	Go to Step 17	—
17	1. Clear the DTCs with a scan tool. 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 run and pass?	Go to Step 18	Go to Step 2
18	Observe the Capture Info with a scan tool. Are there any DTCs that have not been diagnosed?	Go to Diagnostic Trouble Code (DTC) List - Vehicle in Vehicle DTC Information	System OK

Steps 12-18

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

7. If the TP Indicated angle does not follow the movement of the throttle blade, and no TP Sensor DTCs are set, there is a mechanical condition with the throttle shaft or the TP sensor.

18. When the TAC module detects a condition within the TAC system, more than 1 TAC system related DTC may set. This is due to the many redundant tests that run continuously on this system. Locating and repairing 1 individual condition may correct more than 1 DTC. Disconnecting components during testing may set additional DTCs. Keep this in mind when reviewing the Capture Info.