

C0192 calculating the desired Traction Control in AWD applications

Circuit Description

The longitudinal accelerometer is used to determine straight-line acceleration. This information is used when calculating the desired Traction Control in AWD applications.

Conditions for Running the DTC

- The ignition is ON.
- Ignition voltage is greater than 8 volts.

Conditions for Setting the DTC

One of the following conditions exist:

- The yaw rate sensor input voltage is less than 0.15 volts.
- The yaw rate sensor input voltage is greater than 4.85 volts for 1 seconds.
- The longitudinal accelerometer bias exceeds 0.5 g.
- The longitudinal accelerometer signal is not increased by 0.5 volts during longitudinal accelerometer self test.

Action Taken When the DTC Sets

- TCS is degraded.
- The TCS indicators turn ON.
- The ABS remains functional.

Conditions for Clearing the DTC

- The condition for the DTC is no longer present and the DTC is cleared with a scan tool.
- The electronic brake control module (EBCM) automatically clears the history DTC when a current DTC is not detected in 100 consecutive drive cycles.

Diagnostic Aids

The following conditions can cause this concern:

- The longitudinal accelerometer circuit is open, shorted to ground, or shorted to battery.
- Internal longitudinal accelerometer malfunction.
- Internal EBCM malfunction.

Test Description

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

3. Tests for the proper operation of the circuit in the low voltage range.
4. Tests for the proper operation of the circuit in the high voltage range. If the fuse in the jumper opens when you perform this test, the signal circuit is shorted to ground.
5. Tests for a short to voltage in the 5-volt reference circuit.
6. Tests the bias voltage of the longitudinal accelerometer sensor.

Step	Action	Values	Yes	No
Schematic Reference: ABS Schematics Connector End View Reference: ABS Connector End Views				
1	Did you perform the Diagnostic System Check – ABS?	—	Go to Step 2	Go to Diagnostic System Check -ABS
2	<ol style="list-style-type: none"> 1. Install a scan tool. 2. Turn ON the ignition, with the engine OFF. 3. With a scan tool, observe the Longitudinal Accelerometer Sensor Input parameter in the VSES data list. Does the scan tool display within the specified range?	0.15–4.85 V	Go to Step 6	Go to Step 3

Step	Action	Values	Yes	No
3	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Disconnect the yaw rate/lateral/longitudinal accelerometer sensor connector. 3. Turn ON the ignition, with the engine OFF. 4. With the scan tool, observe the Longitudinal Accelerometer Sensor Input parameter. <p>Does the scan tool display a voltage less than the specified value?</p>	0.15 V	Go to Step 4	Go to Step 10
4	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Connect a 3-amp fused jumper wire between the 5-volt reference circuit of the yaw rate/lateral/longitudinal accelerometer sensor and the signal circuit of the yaw rate/lateral/longitudinal accelerometer sensor. 3. Turn ON the ignition, with the engine OFF. 4. With the scan tool, observe the Longitudinal Accelerometer Sensor Input parameter. <p>Does the scan tool display a voltage greater than the specified value?</p>	4.85 V	Go to Step 5	Go to Step 8
5	<ol style="list-style-type: none"> 1. Disconnect the fused jumper wire. 2. Use a DMM to measure the voltage between the 5-volt reference circuit of the yaw rate/lateral/longitudinal accelerometer sensor and the low reference circuit of the yaw rate/lateral/longitudinal accelerometer sensor. <p>Does the voltage measure less the specified value?</p>	5V	Go to Step 12	Go to Step 7
6	<p>Does the scan tool display that the Longitudinal Accelerometer Sensor Input parameter is within the specified range?</p>	2.3–2.7 V	Go to Diagnostic Aids	Go to Step 11

Step	Action	Values	Yes	No
7	Test the 5-volt reference circuit of the yaw rate/lateral/longitudinal accelerometer sensor for a short to voltage. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	—	Go to Step 16	Go to Step 13
8	Test the 5-volt reference circuit of the yaw rate/lateral/longitudinal accelerometer sensor for the following conditions: <ul style="list-style-type: none"> • An open • A short to ground • A high resistance Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	—	Go to Step 16	Go to Step 9
9	Test the signal circuit of the yaw rate/lateral/longitudinal accelerometer sensor for the following conditions: <ul style="list-style-type: none"> • An open • A short to ground • A high resistance Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	—	Go to Step 16	Go to Step 13
10	Test the signal circuit of the yaw rate/lateral/longitudinal accelerometer sensor for a short to voltage. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	—	Go to Step 16	Go to Step 13

Step	Action	Values	Yes	No
11	<p>Test the low reference circuit of the yaw rate/lateral/longitudinal accelerometer sensor for the following conditions:</p> <ul style="list-style-type: none"> • An open • A high resistance Refer to Circuit Testing and Wiring Repairs in Wiring Systems. <p>Did you find and correct the condition?</p>	—	Go to Step 16	Go to Step 12
12	<p>Inspect for poor connections at the harness connector of the yaw rate/lateral/longitudinal accelerometer sensor. Refer to Testing for Intermittent and Poor Connections and Connector Repairs in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	—	Go to Step 16	Go to Step 14
13	<p>Inspect for poor connections at the harness connector of the EBCM. Refer to Testing for Intermittent and Poor Connections and Connector Repairs in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	—	Go to Step 16	Go to Step 15
14	<p>Replace the yaw rate/lateral/longitudinal accelerometer sensor. Refer to Yaw Rate Sensor/Lateral Accelerometer Replacement.</p> <p>Did you complete the repair?</p>	—	Go to Step 16	—

Step	Action	Values	Yes	No
15	Replace the EBCM. Refer to Electronic Brake Control Module (EBCM) Replacement. Did you complete the repair?	—	Go to Step 16	—
16	1. Clear the DTCs using the scan tool. 2. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text. Does the DTC reset?	—	Go to Step 2	System OK

LAUNCH