

## DTC C0196

### Circuit Description

The scan tool will report zero yaw rate as 2.5 Volts without a sensor bias present. The sensor bias compensates for electronic signal errors, temperatures changes and manufacturing differences. With the vehicle at rest the voltage should be 2.5 volts.

### Conditions for Running the DTC

- The fault is detected when the ignition is ON.
- The vehicle speed is greater than 5 km/h (3 mph).

### Conditions for Setting the DTC

The yaw rate input voltage is less than 0.15 Volts or greater than 4.85 Volts for less than 1 second.

### Action Taken When the DTC Sets

- The code is displayed on the scan tool as DTC C0196.
- The rear wheel steering system remains functional.

### Conditions for Clearing the DTC

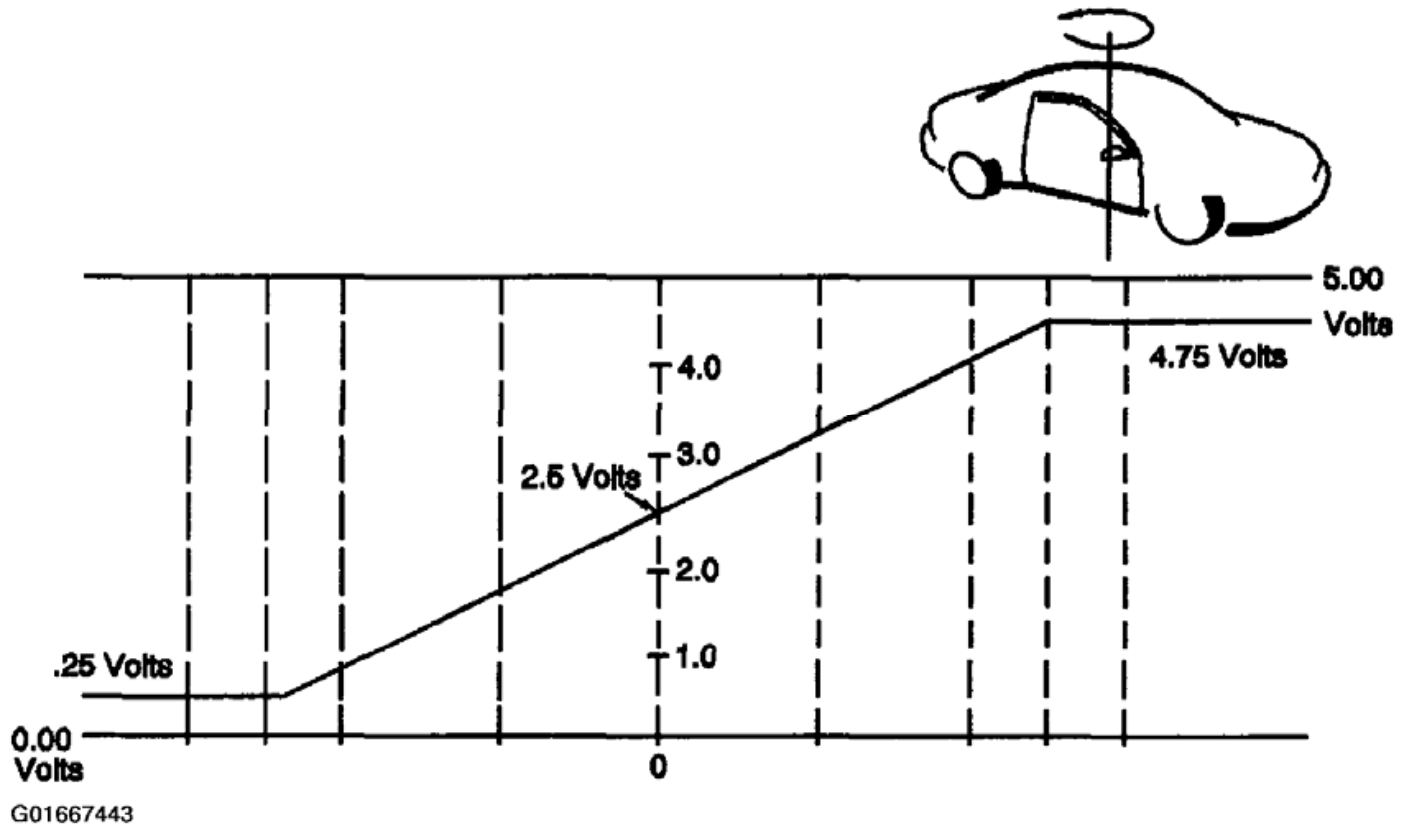
- The conditions for the DTC are not currently present.
- The rear wheel steering control module receives a clear code comm and from the scan tool.
- The DTC clears after 100 malfunction free ignitions cycles.

### Diagnostic Aids

- Inspect for poor connections at the harness connector of the rear wheel steering control module and Yaw Rate sensor/Lateral Accelerometer sensor connector. Refer to **TESTING FOR INTERMITTENT and POOR CONNECTIONS** and Connector Repairs .
- Observe the rear wheel steering mode select switch. If all of the mode indicator LEDs are illuminated the rear wheel steering control module has lost its memory settings and the scan tool must be used to re-calibrate the rear wheel steering alignment data in the rear wheel steering control module. Refer to **SPECIFICATIONS** .
- The system can have DTC C0196 and 4-Wheel Steering will still function normally.

## Yaw Rate Sensor - Voltage

- 0 yaw = 2.5 volts
- Proportional output voltage is 0.25 to 4.75 volts
- Output is used to determine Direction of Rotation (Which Way) Rate of Rotation (How Fast)
- Unit is sealed
- Output Cannot Determine Absolute Position



## Yaw Rate Sensor - Voltage Chart

Courtesy of GENERAL MOTORS CORP. .

## 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 high voltage range.
- 4) - Tests for the proper operation of the circuit in the low voltage range. If the fuse in the jumper opens when you perform this test, the signal circuit is shorted to voltage.
- 5) - Tests for a short to ground in the 5 Volt reference circuit.

## DTC C0196 Diagnosis

Step	Action	Values	Yes	No
1	Did you perform the Diagnostic System Check–Rear Wheel Steering?	—	Go to Step 2	Go to <i>Diagnostic System Check - Rear Wheel Steering</i>
2	<ol style="list-style-type: none"> <li>1. Install a scan tool.</li> <li>2. Turn the ignition switch to the ON position, with the engine OFF.</li> <li>3. With a scan tool, observe the Yaw Rate Sensor Input parameter in the Rear Wheel Steering data list.</li> </ol> Does the scan tool indicate that the Yaw Rate Sensor Input parameter is within the specified range?	2.40 - 2.60	Go to Diagnostic Aids	Go to Step 3
3	<ol style="list-style-type: none"> <li>1. Turn the ignition switch to the OFF position.</li> <li>2. Disconnect the Yaw Rate sensor/Lateral Accelerometer sensor connector.</li> <li>3. Turn the ignition switch to the ON position, with the engine OFF.</li> <li>4. With a scan tool, observe the Yaw Rate Sensor Input parameter.</li> </ol> Does the scan tool indicate that the Yaw Rate Sensor Input parameter is greater than the specified value?	4.85 V	Go to Step 4	Go to Step 8
4	<ol style="list-style-type: none"> <li>1. Turn the ignition switch to the OFF position.</li> <li>2. Connect a 3 Amp fused jumper wire between the yaw signal circuit of the Yaw rate sensor and the ground circuit of the yaw rate sensor.</li> <li>3. Turn the ignition switch to the ON position, with the engine OFF.</li> <li>4. With a scan tool, observe the Yaw Rate Sensor Input parameter.</li> </ol> Does the scan tool indicate that the Yaw Rate Sensor Input parameter is less than the specified value?	0.15 V	Go to Step 5	Go to Step 9
5	<ol style="list-style-type: none"> <li>1. Turn the ignition switch to the OFF position.</li> <li>2. Disconnect the fused jumper wire.</li> <li>3. Connect a 3 Amp fused jumper wire between the 5 Volt reference circuit of the yaw rate sensor and the signal circuit of the yaw rate sensor.</li> <li>4. Turn the ignition switch to the ON position, with the engine OFF.</li> <li>5. With a scan tool, observe the Yaw Rate Sensor Input parameter.</li> </ol> Does the scan tool indicate that the Yaw Rate Sensor Input parameter is greater than the specified value?	4.85 V	Go to Step 7	Go to Step 6
6	Test the 5 Volt reference circuit of the yaw sensor for a short to ground. Refer to <i>Circuit Testing and Wiring Repairs</i> in <i>Wiring Systems</i> . Did you find and correct the condition?	—	Go to Step 15	Go to Step 12

Step	Action	Values	Yes	No
7	Test the 5 Volt reference circuit of the yaw rate sensor for a short to voltage, a high resistance, or an open. Refer to <i>Circuit Testing and Wiring Repairs</i> in Wiring Systems. Did you find and correct the condition?	—	Go to Step 15	Go to Step 11
8	Test the signal circuit of the yaw rate sensor for a short to ground. Refer to <i>Circuit Testing and Wiring Repairs</i> in Wiring Systems. Did you find and correct the condition?	—	Go to Step 15	Go to Step 12
9	Test the signal circuit of the yaw rate sensor for a short to voltage, a high resistance, or an open. Refer to <i>Circuit Testing and Wiring Repairs</i> in Wiring Systems. Did you find and correct the condition?	—	Go to Step 15	Go to Step 10
10	Test the ground circuit of the yaw rate sensor for a short to voltage, a high resistance, or an open. Refer to <i>Circuit Testing and Wiring Repairs</i> in Wiring Systems. Did you find and correct the condition?	—	Go to Step 15	Go to Step 12
11	Inspect for poor connections at the harness connector of the Yaw Rate sensor/Lateral Accelerometer sensor connector. Refer to <i>Testing for Intermittent and Poor Connections and Connector Repairs</i> in Wiring Systems. Did you find and correct the condition?	—	Go to Step 15	Go to Step 13
12	Inspect for poor connections at the harness connector of the rear wheel steering control module. Refer to <i>Testing for Intermittent and Poor Connections and Connector Repairs</i> in Wiring Systems. Did you find and correct the condition?	—	Go to Step 15	Go to Step 14
13	<b>Important:</b> Perform the Learn Lateral Accelerometer. Replace the Yaw Rate sensor/Lateral Accelerometer sensor. Refer to <i>Yaw Rate Sensor/Lateral Accelerometer Replacement</i> in Rear Wheel Steering. Did you complete the replacement?	—	Go to Step 15	—
14	<b>Important:</b> Perform the Learn Alignment procedure. Refer to <i>Measuring Wheel Alignment (With Rear Wheel Steering)</i> or <i>Measuring Wheel Alignment (Without Rear Wheel Steering)</i> in Wheel Alignment. Replace the rear wheel steering module. Refer to <i>Rear Wheel Steering Control Module Replacement</i> . Did you complete the replacement?	—	Go to Step 15	—
15	1. Use the scan tool in order to clear the DTCs. 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