

# **C0241 or P0856 A serial data message is sent to the EBCM indicating that traction control is not allowed**

## **Circuit Description**

The electronic brake control module (EBCM) and the engine control module (ECM) simultaneously control the traction control. The ECM reduces the amount of torque supplied to the drive wheels by retarding spark timing and selectively turning OFF fuel injectors. The EBCM actively applies the brakes to the front wheels in order to reduce torque. The EBCM sends a requested torque message via a pulse width modulated (PWM) signal to the ECM. The duty cycle of the signal is used to determine how much engine torque the EBCM is requesting the ECM to deliver. Normal values are between 10 and 90 percent duty cycle. The signal should be at 90 percent when traction control is not active and at lower values during traction control activations. The ECM supplies a pull up voltage of 12 volts that the EBCM switches to ground to create the signal. The ECM sends a delivered torque message via a PWM signal to the EBCM. The duty cycle of the signal is used to determine how much engine torque the ECM is delivering. Normal values are between 10 and 90 percent duty cycle. The signal should be at low values, around 10 percent, at idle and higher values under driving conditions. The EBCM supplies a pull up voltage of 12 volts that the ECM switches to ground to create the signal. When certain ECM DTCs are set, the ECM will not be able to perform the torque reduction portion of traction control. A serial data message is sent to the EBCM indicating that traction control is not allowed.

## **Conditions for Running the DTC**

The engine is running.

## **Conditions for Setting the DTC**

The PCM diagnoses the requested torque signal circuit and sends a serial data message to the EBCM indicating that torque reduction is not allowed.

## Action Taken When the DTC Sets

- The EBCM disables the EDC/TCS for the duration of the ignition cycle.
- The Traction Off indicator turns ON.
- The ABS remains functional.

## Conditions for Clearing the DTC

- The condition for the DTC is no longer present and you used the scan tool Clear DTC function.
- The EBCM automatically clears the history DTC when a current DTC is not detected in 100 consecutive drive cycles.
- The PCM automatically clears the history DTC when a current DTC is not detected in 40 consecutive warm-up cycles.

## Diagnostic Aids

The following conditions can cause this concern:

- An open in the delivered torque circuit.
- An short to ground or voltage in the delivered torque circuit.
- A wiring problem, terminal corrosion, or poor connection in the delivered torque circuit.
- A communication frequency problem.
- A communication duty cycle problem.
- The EBCM is not receiving information from the PCM.
- Loose or corroded EBCM ground or PCM ground.

## Test Description

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

2. Use the scan tool in order to determine if the requested torque signal has a valid duty cycle.
3. Measure the requested torque signal in order to determine if the signal has a valid duty cycle.
4. Measure the requested torque signal in order to determine if the signal has a valid frequency.
10. This vehicle is equipped with a ECM which uses an Electrically Erasable Programmable Read Only Memory (EEPROM). When replacing the ECM, the replacement ECM must be programmed.

Step	Action	Value(s)	Yes	No
<b>Schematic Reference: ABS Schematics</b> <b>Connector End View Reference: ABS Connector End Views, Engine Controls Connector End Views in Engine Controls – 3.6L, or Engine Controls Connector End Views in Engine Controls – 4.6L</b>				
1	Did you perform the ABS Diagnostic System Check?	—	Go to Step 2	Go to Diagnostic System Check -ABS
2	1. Install a scan tool. 2. Start the engine. 3. With a scan tool, observe the Torque Request Signal parameter in the Powertrain Control Module data list. Does the scan display less than the specified value?	100%	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	1. Turn OFF the ignition. 2. Disconnect the EBCM harness connector. 3. Install the J 39700 universal breakout box using the J 39700-300 cable adapter to the EBCM harness connector and the EBCM connector. 4. Start the engine. 5. Measure the DC duty cycle between the requested torque signal circuit and a good ground. Is the duty cycle within the specified range?	5–95%	Go to Step 4	Go to Step 5
4	Measure the DC frequency between the requested torque signal circuit and a good ground. Does the frequency measure within the specified range?	121–134 Hz	Go to Step 7	Go to Step 5

Step	Action	Value(s)	Yes	No
5	<ol style="list-style-type: none"> <li>1. Turn OFF the ignition.</li> <li>2. Disconnect the J 39700-300 cable adapter from the EBCM connector.</li> <li>3. Turn ON the ignition, with the engine OFF.</li> <li>4. Measure the voltage from the requested torque signal circuit to a good ground.</li> </ol> <p>Does the voltage measure near the specified value?</p>	B+	Go to Step 9	Go to Step 6
6	<ol style="list-style-type: none"> <li>1. Turn OFF the ignition.</li> <li>2. Disconnect the engine control module (ECM) harness connector.</li> <li>3. Test the requested torque signal circuit for the following conditions: <ul style="list-style-type: none"> <li>• A short to voltage</li> <li>• A short to ground</li> </ul> </li> </ol> <p>Refer to Circuit Testing and Wiring Repairs in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	—	Go to Step 12	Go to Step 9
7	<ol style="list-style-type: none"> <li>1. Turn OFF the ignition.</li> <li>2. Disconnect the engine control module (ECM) harness connector.</li> <li>3. Test the requested torque signal circuit for the following conditions: <ul style="list-style-type: none"> <li>• An open</li> <li>• A high resistance</li> </ul> </li> </ol> <p>Refer to Circuit Testing on page 8-1184 and Wiring Repairs on page 8-1189 in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	—	Go to Step 12	Go to Step 8

Step	Action	Value(s)	Yes	No
8	Inspect for poor connections the harness connector of the ECM. Refer to Testing for Intermittent and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	—	Go to Step 12	Go to Step 10
9	Inspect for poor connections the harness connector of the EBCM. Refer to Testing for Intermittent and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	—	Go to Step 12	Go to Step 11
10	Important: The replacement ECM must be programmed. Replace the ECM. Refer to Engine Control Module (ECM) Replacement in Engine Controls – 3.6L, or Engine Control Module (ECM) Replacement in Engine Controls – 4.6L. Did you complete the repair?	—	Go to Step 12	—
11	Replace the EBCM. Refer to Electronic Brake Control Module (EBCM) Replacement. Did you complete the repair?	—	Go to Step 12	—
12	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