

# **C0710 The ESC module monitors the PWM steering position circuit to determine if a valid signal is sent from the EBCM**

## **Circuit Description**

The electronic suspension control (ESC) module receives a pulse-width modulation (PWM) steering position signal from the electronic brake control module (EBCM). The ESC module uses this signal in order to determine the shock absorber control levels and will command a more firm setting if the vehicle is in a turn. The ESC module monitors the PWM steering position circuit to determine if a valid signal is sent from the EBCM.

## **Conditions for Running the DTC**

The ignition is ON.

## **Conditions for Setting the DTC**

- The ESC module does not detect a valid steering position signal from the EBCM for 5.0 seconds.
- The fault is detected during three consecutive ignition cycles, or during the same ignition cycle after clearing the DTC with a scan tool.

## **Action Taken When the DTC Sets**

- The ESC module ignores the steering position signal input.
- The ESC module continues to control the shock absorbers using the lateral acceleration data sent from the EBCM on the serial data line.
- The SERVICE SUSPENSION SYS message will be displayed.

## **Conditions for Clearing the MIL/DTC**

- The scan tool can be used to clear the DTC.
- The DTC is saved as history when the ESC module detects a valid steering position signal from the EBCM. The DTC will clear if the fault does not return after 50 consecutive ignition cycles.

## Diagnostic Aids

- The following conditions may cause an intermittent malfunction:
  - An intermittent open circuit condition on the steering position sensor circuit.
  - A short to ground or to voltage in the steering position sensor circuit.
  - Intermittent operation of the EBCM.
- If the ESC module does not receive a valid steering position signal from the EBCM, the ESC system will still function, but will ignore the steering position signal. The ESC system uses lateral acceleration data sent from the EBCM on the serial data line in order to substitute for a loss of the steering position signal.
- An intermittent open circuit condition, or a short circuit condition to ground or voltage on the steering position sensor circuit may cause a random firm/soft ride condition.
- If the DTC is a history DTC, the problem may be intermittent. Using a scan tool, monitor the steering position sensor circuit while moving the related wiring and connectors. This can often cause the malfunction to appear.

## Test Description

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

2. This step tests for normal function of the EBCM.
3. This step tests for normal function of the EBCM.
4. This step tests for an intermittent or poor connection at the EBCM.
5. This step tests for a short to ground in the Steering Wheel Position Signal circuit.

### DTC C0710

Step	Action	Value(s)	Yes	No
<b>Schematic Reference: Suspension Controls Schematics on page 3-133</b>				
1	Did you perform the Electronic Suspension Control (ESC) Diagnostic System Check?	—	Go to Step 2	Go to Diagnostic System Check -Electronic Suspension Control on page 3-143

Step	Action	Value(s)	Yes	No
2	1. Install a scan tool. 2. Turn ON the ignition, with the engine OFF. 3. With a scan tool, observe the Steering Position PWM parameter in the ESC module data list. Does the scan tool indicate that the Steering Position PWM Parameter is within the specified range?	0–10 ms	Go to Step 3	Go to Step 4
3	1. Activate the Steering Position PWM input. 2. With the scan tool, observe the Steering Position PWM data parameter while turning the steering wheel. Does the Steering Position PWM data parameter change state while the steering wheel is turned?	—	Go to Diagnostic Aids	Go to Step 4
4	1. Turn OFF the ignition. 2. Disconnect the EBCM. 3. Turn ON the ignition, with the engine OFF. 4. With a scan tool, observe the Steering Position PWM data parameter. Does the scan tool indicate that the Steering Position PWM Parameter is within the specified range?	0–10 ms	Go to Step 7	Go to Step 5
5	Test the signal circuit of the EBCM for a short to ground. Refer to Circuit Testing on page 8-1184 and Wiring Repairs on page 8-1189 in Wiring Systems. Did you find and correct the condition?	—	Go to Step 10	Go to Step 6
6	Inspect for poor connections at the harness connector of the ESC module. Refer to Testing for Intermittent and Poor Connections Did you find and correct the condition?	—	Go to Step 10	Go to Step 8

Step	Action	Value(s)	Yes	No
7	Inspect for poor connections at the harness connector of the EBCM. Refer to Testing for Intermittent and Poor Connections on page 8-1187 and Connector Repairs on page 8-1198 in Wiring Systems. Did you find and correct the condition?	—	Go to Step 10	Go to Step 9
8	Replace the ESC module. Refer to Electronic Suspension Control Module Replacement on page 3-167. Did you complete the replacement?	—	Go to Step 10	—
9	Replace the EBCM. Refer to Electronic Brake Control Module (EBCM) Replacement on page 5-254 in Antilock Brake System. Did you complete the replacement?	—	Go to Step 10	—
10	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