

DTC C0110

Circuit Description

The electronic brake control module (EBCM) supplies ground to activate the Antilock Brake System (ABS) pump motor. An internal system relay in the EBCM supplies battery positive voltage to the pump motor when the ignition is turned ON. The EBCM monitors pump motor feedback voltage after activation to detect a stalled or binding pump motor.

DTC Descriptor

This diagnostic procedure supports the following DTC:

DTC C0110 Pump Motor Circuit

DTC Symptom	DTC Symptom Descriptor
04	Open
07	Voltage Above Threshold
61	Actuator Stuck

Conditions for Running the DTC

C0110 04

- The system and ignition voltage is between 10.5–17 volts.
- The system enable relay is ON.
- The pump motor has been commanded OFF for 2.5 seconds.

C0110 07

- The system and ignition voltage is between 10.5–17 volts.
- The system enable relay is ON.

C0110 61

- DTC C0110 04 or 07 are not set.
- The system enable relay is ON.
- The pump motor has been commanded ON for 0.3 second.

Conditions for Setting the DTC

C0110 04

The EBCM detects an open in the pump motor circuit when the voltage across the pump motor is between 10–90 percent of ignition voltage.

C0110 07

This code sets for an open in the pump motor driver circuit when the pump is commanded ON and the following conditions exist:

- The voltage across the pump is less than 8 volts.
- The voltage at the high side of the motor is greater than 9.25 volts.
- The EBCM detects a open in the low side pump motor driver circuit.

C0110 61

The pump motor continues to rotate briefly after activation creating a feedback voltage. The EBCM sets the code if the measured feedback voltage indicates a binding or stalled pump motor.

Action Taken When the DTC Sets

- The EBCM disables the ABS.
- The ABS indicator turns ON.
- The dynamic rear proportion (DRP) is degraded.

Conditions for Clearing the DTC

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

Diagnostic Aids

The pump motor is integral to the brake pressure modulator valve (BPMV). The pump motor is not serviceable.

Test Description

The number below refers to the step number on the diagnostic table.

- 5. [This step tests the ability of the EBCM to control the pump motor. If the test lamp illuminates, the pump motor circuit within the EBCM is good.](#)

DTC C0110

Step	Action	Yes	No
Schematic Reference: <u>Antilock Brake System Schematics</u> Connector End View Reference: <u>Antilock Brake System Connector End Views</u>			
1	Did you perform the Diagnostic System Check – Vehicle?	Go to <u>Step 2</u>	Go to <u>Diagnostic System Check - Vehicle</u>
2	1. Use the scan tool in order to clear the DTCs. 2. Cycle the ignition to the OFF position. 3. Start the engine. 4. In park or neutral, release the brake. 5. Turn OFF the engine. Does the DTC reset?	Go to <u>Step 3</u>	Go to <u>Testing for Intermittent Conditions and Poor Connections</u>
3		Go to <u>Step 5</u>	Go to <u>Step 4</u>

Step	Action	Yes	No
	<ol style="list-style-type: none"> 1. Remove the electronic brake control module (EBCM) from the brake pressure modulator valve (BPMV). Refer to Electronic Brake Control Module Replacement. 2. Inspect the EBCM to BPMV connector for conditions which could cause an intermittent, such as damage, corrosion, poor terminal contact, or presence of brake fluid. <p>Is the connector OK and the cavity free of brake fluid?</p>		
4	<ol style="list-style-type: none"> 1. If connector corrosion or damage is evident, replace BPMV and/or EBCM as necessary. 2. If brake fluid is present, replace both BPMV and EBCM. Refer to Brake Pressure Modulator Valve Replacement and Control Module References for replacement, setup, and programming. <p>Did you complete the repair?</p>	Go to Step 8	—
5	<ol style="list-style-type: none"> 1. Connect the EBCM harness to the EBCM with the BPMV still separated. 2. Connect a test lamp between the pump motor circuits, internal EBCM side, using the J 35616 GM Terminal Test Kit . 3. Cycle the ignition to the OFF position. 4. Start the engine. 5. In park or neutral, release the brake. <p>Does the test lamp illuminate?</p>	Go to Step 7	Go to Step 6
6	<p>Replace the EBCM. Refer to Control Module References for replacement, setup, and programming.</p> <p>Did you complete the repair?</p>	Go to Step 8	—
7	<p>Replace the BPMV. Refer to Brake Pressure Modulator Valve Replacement.</p> <p>Did you complete the repair?</p>	Go to Step 8	—
8	<ol style="list-style-type: none"> 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. <p>Does the DTC reset?</p>	Go to Step 2	System OK