

## DTC C0110

### Diagnostic Instructions

- Perform the [Diagnostic System Check - Vehicle](#) prior to using this diagnostic procedure.
- Review [Strategy Based Diagnosis](#) for an overview of the diagnostic approach.
- [Diagnostic Procedure Instructions](#) provides an overview of each diagnostic category

### DTC Descriptor

DTC C0110 00: Return Pump Circuit Malfunction

### Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
ABS Pump Motor Power Circuit	C0110 00	C0110 00	--	--
ABS Pump Motor Ground Circuit	--	C0110 00	--	--
ABS Pump Motor Relay or Mechanical Fault	--	--	--	C0110 00

### Circuit/System Description

The pump motor is an integral part of the brake modulator assembly, while the pump motor relay is integral to the electronic brake control module (EBCM). The pump motor relay is not engaged during normal system operation. When Antilock Brake System (ABS) or Traction Control System (TCS) operation is required the EBCM activates the pump motor relay and a ground circuit is provided to the pump motor.

### Conditions for Running the DTC

- The ignition is ON.
- The vehicle speed is greater than 16 km/h (10 mph).

### Conditions for Setting the DTC

- The pump motor relay is activated and there is no pump motor system voltage present after 100 milliseconds.
- The pump motor system voltage is present for greater than 1 second and the pump motor relay did not activate.

### Action Taken When the DTC Sets

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- The EBCM disables the Antilock Brake System (ABS)/Traction Control System (TCS)/Electronic Stability Control (ESP)/Electronic Brake Distribution (EBD) for the duration of the ignition cycle.
- The multi function display (MFD) displays the ABS Fault message.
- The multi function display (MFD) displays the Traction Ctrl Off message.
- The multi function display (MFD) displays the Stability Ctrl Off message.
- The red BRAKE Warning indicator turns ON.

## **Conditions for Clearing the DTC**

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

## **Diagnostic Aids**

The pump motor is integral to the brake modulator assembly. The pump motor is not serviceable. Inspect the power and ground circuits for correct connection.

## **Reference Information**

### **Schematic Reference**

[Antilock Brake System Schematics](#)

### **Connector End View Reference**

[Component Connector End Views](#)

### **Electrical Information Reference**

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

### **Scan Tool Reference**

[Control Module References](#)

## **Circuit/System Verification**

With scan tool installed, clear the DTCs then drive the vehicle in a straight line at a speed greater than 20 km/h (13 mph). If the DTC did not set as a current DTC see diagnostic aids.

## Circuit/System Testing

1. Ignition OFF, disconnect the EBCM harness connector and connect a test lamp between the battery positive voltage supply circuit terminal at the harness connector and to a known ground.
2. Ignition ON, verify that the test lamp illuminates.  
If the test lamp does not illuminate, repair the open or high resistance in the battery positive voltage circuit.
3. Connect a test lamp between the battery positive voltage circuit and pump motor ground circuit at the EBCM harness connector, verify that the test lamp illuminates.  
If the test lamp does not illuminate, repair the open or high resistance in the pump motor ground circuit.
4. Ignition ON, use a scan tool to display DTCs for the EBCM.  
If the DTC is set to current, replace the brake modulator assembly/EBCM.

## Repair Instructions

- Perform the [Diagnostic Repair Verification](#) after completing the diagnostic procedure.
- [Brake Pressure Modulator Valve Assembly Replacement](#)
- [Electronic Brake Control Module Replacement](#)
- [Control Module References](#)