

P0748 TCM detects a continuous open or short to ground in the PC solenoid circuit

Circuit Description

The pressure control (PC) solenoid valve regulates actuator feed fluid passing through the solenoid into torque signal pressure. The TCM uses a pulse width modulated signal in order to control the torque signal pressure. The DTM compares various inputs in order to determine the appropriate pressure for a given load. The TCM varies the current to the PC solenoid from 0.1 amps, for maximum line pressure to 1.1 amps, for minimum line pressure. An internal current monitor within the TCM provides feedback in order to determine actual PC solenoid valve current draw. If the TCM detects a continuous open or short to ground in the PC solenoid circuit, then DTC P0748 sets. DTC P0748 is a type C DTC.

Conditions for Running the DTC

The ignition is ON.

Conditions for Setting the DTC

The PC solenoid valve feedback circuit indicates a continuous open or short to ground for greater than 0.7 seconds.

Action Taken When the DTC Sets

- The TCM does not request the ECM to illuminate the malfunction indicator lamp (MIL).
- SERVICE VEHICLE SOON displays on the driver information center (DIC).
- The TCM commands maximum line pressure.
- The TCM freezes transmission adaptive functions.
- The TCM records the operating conditions when the Conditions for Setting the DTC are met. The TCM stores this information as a Failure Record.
- The TCM stores DTC P0748 in TCM history.

Conditions for Clearing the DIC/DTC

- The TCM clears the DIC when the condition no longer exists.
- A scan tool can clear the DTC.
- The TCM clears the DTC from TCM history if the vehicle completes 40 warm-up cycles without a non emission related diagnostic fault occurring.
- The TCM cancels the DTC default actions when the ignition is OFF long enough in order to power down the TCM.

Test Description

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

2. This step verifies the ability of the TCM to command the PC solenoid valve.
3. This step verifies that the automatic transmission wiring harness and the PC solenoid have correct resistance.

DTC P0748

Step	Action	Value(s)	Yes	No
1	Did you perform the Diagnostic System Check – Vehicle?	—	Go to Step 2	Go to Diagnostic System Check -Vehicle in Vehicle DTC Information

Step	Action	Value(s)	Yes	No
2	1).Install a scan tool. 2).Turn ON the ignition, with the engine OFF. Important: <ul style="list-style-type: none"> ● Before clearing the DTC, use the scan tool in order to record the ECM and the TCM Failure Records. Using the Clear Info function erases the Failure Records from the ECM and TCM. ● Using the Clear Info function erases stored DTCs in both the ECM and TCM. 3). Record the DTC Failure Records. 4).Clear the DTC. 5).Start the engine. 6).Using the scan tool, increase and decrease the PC solenoid amperage. 7).Observe the scan tool display. Does the PC Sol. Actual Current reading vary from the PC Sol. Ref. Current reading by more than the specified amount?	0.05 amps	Go to Step 3	Go to Intermittent Conditions in Engine Controls – 4.6L

Step	Action	Value(s)	Yes	No
3	<p>1). Turn OFF the ignition.</p> <p>2). Disconnect the AT inline 20-way connector. Additional DTCs may set.</p> <p>3). Install the J 45681 jumper harness on the transmission side of the AT inline 20-way connector.</p> <p>4). Using the DMM and the J 35616-C GM terminal test kit, measure the resistance between the PC solenoid valve high control circuit and the PC solenoid valve low control circuit of the J 45681.</p> <p>Is the resistance within the specified range?</p>	3.5–5.5 W	Go to Step 7	Go to Step 4
4	Is the resistance greater than the specified value?	5.5 W	Go to Step 5	Go to Step 6
5	<p>1). Test the high control circuit of the PC solenoid for an open between the AT inline 20-way connector and the PC solenoid valve.</p> <p>2). Test the low control circuit of the PC solenoid for an open between the AT inline 20-way connector and the PC solenoid valve.</p> <p>Did you find a condition?</p>	—	Go to Step 18	Go to Step 19
6	<p>Test the high control circuit and the low control circuit of the PC solenoid for being shorted together between the AT inline 20-way connector and the PC solenoid.</p> <p>Did you find the condition?</p>	—	Go to Step 18	Go to Step 19

Step	Action	Value(s)	Yes	No
7	Measure the resistance from the PC solenoid valve high control circuit of the jumper harness to ground. Is the resistance less than the specified value?	10 W	Go to Step 8	Go to Step 9
8	<p>1).Test the high control circuit of the PC solenoid for a short to ground between the AT inline 20-way connector and the PC solenoid.</p> <p>2).Test the low control circuit of the PC solenoid for a short to ground between the AT inline 20-way connector and the PC solenoid.</p> <p>Did you find a condition?</p>	—	Go to Step 18	Go to Step 19
9	Measure the resistance between the PC solenoid valve high control circuit and all other terminals, except the PC solenoid valve low control circuit, of the J 45681. Refer to Automatic Transmission Inline 20-Way Connector End View. Is the resistance between these less than the specified value?	100 W	Go to Step 18	Go to Step 10

Step	Action	Value(s)	Yes	No
10	<p>1).Disconnect the J 45681 from the transmission side of the AT inline 20-way connector.</p> <p>2).Install the J 45681 on the TCM side of the AT inline 20-way connector.</p> <p>3).Disconnect the TCM. Additional DTCs may set.</p> <p>4).Using the DMM and the J 35616-C, measure the resistance from the PC solenoid valve low control circuit of the J 45681 to ground. Refer to Automatic Transmission Inline 20-Way Connector End View.</p> <p>Is the resistance less than the specified value?</p>	10 W	Go to Step 11	Go to Step 12
11	<p>Test the low control circuit of the PC solenoid for a short to ground between the TCM connector and the AT inline 20-way connector.</p> <p>Did you find and correct the condition?</p>	—	Go to Step 21	—
12	<p>Using the DMM and the J 35616-C, measure the resistance of the PC solenoid valve low control circuit between the J 45681 and the TCM connector. Refer to Automatic Transmission Inline 20-Way Connector End View.</p> <p>Is the resistance less than the specified value?</p>	10 W	Go to Step 14	Go to Step 13
13	<p>Test the low control circuit of the PC solenoid for an open between the TCM connector and the AT inline 20-way connector.</p> <p>Did you find and correct the condition?</p>	—	Go to Step 21	—

Step	Action	Value(s)	Yes	No
14	Using the DMM and the J 35616-C, measure the resistance from the PC solenoid valve high control circuit of the J 45681 to ground. Is the resistance less than the specified value?	10 W	Go to Step 15	Go to Step 16
15	Test the high control circuit of the PC solenoid for a short to ground between the TCM connector and the AT inline 20-way connector. Refer to Testing for Short to Ground and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	—	Go to Step 21	—
16	Using the DMM and the J 35616-C, measure the resistance of the the PC solenoid valve high control circuit between the J 45681 and terminal 3 of the TCM connector. Refer to Automatic Transmission Inline 20-Way Connector End View. Is the resistance less than the specified value?	10 W	Go to Step 20	Go to Step 17
17	Test the high control circuit of the PC solenoid for an open between the TCM connector and the AT inline 20-way connector. Refer to Testing for Continuity and Wiring Repairs. Did you find and correct the condition?	—	Go to Step 21	—
18	Replace the automatic transmission wiring harness. Refer to Transmission Internal Electrical Harness Replacement. Is the action complete?	—	Go to Step 21	—
19	Replace the PC solenoid. Refer to Pressure Control Solenoid (PCS) Replacement. Is the action complete?	—	Go to Step 21	—

Step	Action	Value(s)	Yes	No
20	Replace the TCM. Refer to Transmission Control Module Replacement. Is the action complete?	—	Go to Step 21	—
21	Perform the following procedure in order to verify the repair: 1).Select DTC. 2).Select Clear Info. 3).Operate the vehicle under the following conditions: ● Start and idle the engine. ● System voltage must be at least 11 volts. 4).Select Specific DTC. 5. Enter DTC P0748. Has the test run and passed?	—	Go to Step 22	Go to Step 2
22	With the scan tool, observe the stored information, capture info and DTC info. Does the scan tool display any DTCs that you have not diagnosed?	—	Go to Diagnostic Trouble Code (DTC) List -Vehicle in Vehicle DTC Information	System OK