

P0711 automatic transmission fluid temperature (TFT) sensor

Circuit Description

The automatic transmission fluid temperature (TFT) sensor is a negative coefficient thermistor. When the transmission fluid is cold, the sensor resistance is high. As the transmission fluid warms up, the sensor resistance decreases. This diagnostic monitors the TFT circuit. The circuit may be functional, but not in the normal operating range. This diagnostic indicates stuck, erratic, intermittent, skewed, or inaccurate values, indicating poor system performance. The TFT range is -40 to +151°C (-40 to +305°F). If the TCM detects rapid or no voltage changes in the TFT sensor circuit, then DTC P0711 sets. DTC P0711 is a type C DTC.

Conditions for Running the DTC

- No ECT DTC P0115.
- No ISS DTCs P0716 or P0717.
- No OSS DTCs P0722 or P0723.
- DTC P0711 has not passed in the current ignition cycle.
- The engine run time is greater than 5 seconds.
- The transmission fluid temperature is -39 to +149°C (-38 to +300°F).
- For conditions 1 and 2 below, the engine coolant temperature is greater than 70°C (158°F) and has changed by at least 50°C (90°F) since startup.
- For conditions 1 and 2 below, the TCC slip speed is 120 RPM or greater for 600 seconds (10 minutes) cumulatively.

Conditions for Setting the DTC

One of the following conditions occurs:

Condition 1

- The transmission fluid temperature at startup is -40 to +21°C (-40 to +70°F).
- The vehicle speed is greater than 8 km/h (5 mph) for 900 seconds (15 minutes) cumulatively.

- The transmission fluid temperature has not changed by more than 2°C (4°F) since startup for 100 seconds (1 minute and 40 seconds).

Condition 2

- The transmission fluid temperature at startup is 129–150°C (264–302°F).
- The vehicle speed is greater than 8 km/h (5 mph) for 600 seconds (10 minutes) cumulatively.
- The transmission fluid temperature has not changed by more than 2°C (4°F) since startup for 100 seconds (1 minute and 40 seconds).

Condition 3

The transmission fluid temperature has changed by 20°C (36°F) or greater within 250 milliseconds; 14 times within 7 seconds.

Action Taken When the DTC Sets

- The TCM does not request the engine control module (ECM) to illuminate the malfunction indicator lamp (MIL).
- The TCM freezes transmission adaptive functions.
- The TCM calculates a default transmission fluid temperature based on engine coolant temperature, intake air temperature and engine run time.
- 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 P0711 in TCM history.

Conditions for Clearing the DTC

- 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 fault no longer exists and the DTC passes.

Test Description

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

5. This step tests for an intermittent short or open condition in the engine wiring

- harness. The test light is used as a resistor in the circuit.
6. This step determines if the TCM or the TFT, sensor is causing a steady, unchanging TFT, reading.

DTC P0711

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
2	Perform the Transmission Fluid Checking Procedure. Did you perform the Transmission Fluid Checking Procedure?	—	Go to Step 3	Go to Transmission Fluid Checking Procedure

Step	Action	Value(s)	Yes	No
3	<p>1).Install a scan tool.</p> <p>2).Turn ON the ignition, with the engine OFF.</p> <p>Important:</p> <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. <p>3).Record the DTC Failure Records. 4. Clear the DTC.</p> <p>4).Select Trans. Fluid Temp. on the scan tool.</p> <p>5).Drive the vehicle and observe the scan tool for either of the following conditions:</p> <ul style="list-style-type: none"> ● The TFT does not change greater than 2°C (4°F) in 1 minute and 40 seconds since startup. ● The TFT changes by 20°C (36°F) or greater in 0.250 second, 14 times within 7 seconds, unrealistic change. <p>Did either of the conditions occur?</p>	—	Go to Step 4	Go to Intermittent Conditions in Engine Controls– 4.6L

Step	Action	Value(s)	Yes	No
4	Did the scan tool display a condition in which the Trans. Fluid Temp. does not change by greater than the specified value in 1 minute and 40 seconds since startup?	2°C (4°F)	Go to Step 6	Go to Step 5
5	<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 engine side of the AT inline 20-way connector. 4. Using the GM terminal test kit, connect a test light between the TFT sensor signal circuit and the low reference circuit of the J 45681.</p> <p>4).Turn ON the ignition, with the engine OFF. 6. While observing the scan tool display, move or wiggle the engine wiring harness from the TCM connector to the AT inline 20-way connector.</p> <p>Does the Trans. Fluid Temp. change by greater than the specified value?</p>	20°C (36°F)	Go to Step 7	Go to Step 8
6	<p>1).Turn OFF the ignition.</p> <p>2).Disconnect the AT inline 20-way connector.</p> <p>3).Turn ON the ignition, with the engine OFF. Did the scan tool display a condition in which the Trans. Fluid Temp. does not change by greater than the specified value in 1 minute and 40 seconds since startup?</p>	2°C (4°F)	Go to Step 9	Go to Step 8

Step	Action	Value(s)	Yes	No
7	<p>1).Test the TFT sensor signal circuit for an intermittent open or short condition between the TCM connector and the AT inline 20-way connector.</p> <p>2).Test the TFT low reference circuit for an intermittent open or short condition between the TCM connector and the AT inline 20-way connector.</p> <p>Did you find and correct a condition?</p>	—	Go to Step 10	Go to Step 8
8	<p>Replace the automatic transmission wiring harness. Did you complete the replacement?</p>	—	Go to Step 10	—
9	<p>Replace the TCM.</p> <p>Did you complete the replacement?</p> <p>Perform the following procedure in order to verify the repair:</p>	—	Go to Step 10	—
10	<p>1).Select DTC.</p> <p>2).Select Clear Info.</p> <p>3).Drive the vehicle and ensure the following conditions are met:</p> <ul style="list-style-type: none"> ● The TFT is -39°C to +149°C (-38°F to +300°F). ● The TFT changes by greater than 2°C (4°F) since startup. ● The TFT does not change by 20°C (36°F) or greater within 0.250 second. <p>4). Select Specific DTC.</p> <p>5).Enter DTC P0711.</p> <p>Has the test run and passed?</p>	—	Go to Step 11	Go to Step 2
11	<p>With the scan tool, observe the stored information, capture info and DTC info.</p> <p>Does the scan tool display any DTCs that you have not diagnosed?</p>	—	Go to Diagnostic Trouble Code (DTC) List -Vehicle in Vehicle DTC Information	System OK