

P0711, P0712, or P0713

Transmission Fluid Temperature (TFT) Sensor Circuit

Diagnostic Instructions

- Perform the Diagnostic System Check – Vehicle on page 6-60 prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis on page 6-57 for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions on page 6-58 provides an overview of each diagnostic category.

DTC Descriptors

DTC P0711: Transmission Fluid Temperature (TFT) Sensor Performance

DTC P0712: Transmission Fluid Temperature (TFT) Sensor Circuit Low Voltage

DTC P0713: Transmission Fluid Temperature (TFT) Sensor Circuit High Voltage

Circuit/System Description

The transmission fluid temperature (TFT) sensor is located inside of the transmission control module (TCM) assembly and is not serviced separately. The TFT sensor provides transmission fluid temperature to the TCM. This fault is handled inside the TCM and no external circuits are involved.

Conditions for Running the DTC

P0711

- No DTCs P0711, P0716, P0717, P0722, or P0723.
- DTC P0711 has not passed this ignition cycle.
- The TCM temperature sensor is between -49 and $+169^{\circ}\text{C}$ (-56 and $+336^{\circ}\text{F}$).
- The engine speed is greater than 500 RPM for 5 seconds.
- The ignition voltage is between 8.6 volts and 19.0 volts.

- Vehicle speed is 8 km/h (5 mph) or greater for 300 seconds cumulative.
- TCC slip speed is greater than 120 RPM for 300 seconds cumulative.
- The TFT has changed by less than 2.0°C (3.6°F) in 100 seconds.
- The engine coolant temperature (ECT) is greater than 70°C (158°F).
- The ECT has increased by 55°C (99°F) since startup.

P0712

- The output shaft speed is 200 RPM or greater for 200 seconds or more.
- The TCC slip speed is 120 RPM or greater for 200 seconds or more.
- DTC P0712 is not failed this ignition cycle.
- The engine speed is greater than 500 RPM for 5 seconds.
- The ignition voltage is between 8.6 volts and 19.0 volts.

P0713

- DTC P0713 has not failed this ignition cycle.
- The engine speed is greater than 500 RPM for 5 seconds.
- The ignition voltage is between 8.6 volts and 19.0 volts.

Conditions for Setting the DTC

P0711 – Fail Case 1

The TFT is between -50 and +21°C (-58 and +70°F).

P0711 – Fail Case 2

The TFT is between 129–170°C (264–338°F).

P0711 – Fail Case 3

The TFT changes by 20°C (36°F) or greater 14 times over 7 seconds.

P0711 – Fail Case 4

The TFT is less than 20°C (36°F) after a predetermined time.

P0712

The TFT is less than -74°C (-101°F) for 25 seconds or more.

P0713

The TFT is 174°C (345°F) or greater for 10 seconds or more.

Action Taken When the DTC Sets

- DTCs P0711, P0712, and P0713 are Type C DTCs.
- The TCM freezes transmission adaptive functions.
- The TCM allows the vehicle to operate in transmission protection mode.

Conditions for Clearing the DTC

DTCs P0711, P0712, and P0713 are Type C DTCs.

Diagnostic Aids

The transmission control module (TCM) temperature sensor is located inside of the control solenoid (w/body and TCM) valve assembly and its output should resemble that of the transmission fluid temperature (TFT) sensor's output.

Reference Information

Description and Operation

Electronic Component Description on page 17-279 for control solenoid (w/body and TCM) valve assembly

DTC Type Reference

Powertrain Diagnostic Trouble Code (DTC) Type Definitions on page 6-61

Scan Tool Reference

Control Module References on page 6-1 for scan tool information

Circuit/System Verification

- 1). Engine idling at operating temperature, verify the scan tool Trans Fluid Temp. parameter is between -74 and $+174^{\circ}\text{C}$ (-101 and $+345^{\circ}\text{F}$).

If not within the specified range, replace the control solenoid (w/body and TCM) valve assembly.

- 2). Operate the vehicle at 64 km/h (40 mph) for 10 minutes, verify the scan tool Trans Fluid Temp. parameter varies by more than 2°C (3.5°F) to verify that the sensor is not stuck.

If less than the specified range, replace the control solenoid (w/body and TCM) valve assembly.

- 3). Operate the vehicle within the Conditions for Running the DTC to verify the DTC does not reset. You may also operate the vehicle within the conditions that you observed from the Freeze Frame/Failure Records data.

Repair Instructions

Important:

- Perform the Service Fast Learn Adapts on page 17-102 following all transmission related repairs.
- Before replacing the TCM, perform the Control Solenoid Valve and Transmission Control Module Assembly Inspection on page 17-98. Perform the Diagnostic Repair Verification on page 6-86 after completing the diagnostic procedure. Control Module References on page 6-1 for control solenoid (w/body and TCM) valve assembly replacement, setup, and programming

LAUNCH