| DTC | P0711 | Transmission Fluid Temperature Sensor "A" Performance |
|---|---|---|

## DESCRIPTION

The ATF (Automatic Transmission Fluid) temperature sensor converts the fluid temperature into a resistance value which is input into the ECM.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| P0711 | (A) Both (a) and (b) are detected: (2-trip detection logic)<br>(a) Intake air and engine coolant temperatures are more than -10°C (14°F) at engine start<br>(b) After normal driving for over 19 min. and 9 km (6 mile) or more, ATF temp. is less than 20°C (68°F)<br>(B) When engine coolant temp. is less than 35°C (95°F) at engine start, the ATF temp. is 110°C (230°F) or more after 17 min. of engine start (2-trip detection logic). | Transmission wire (ATF temperature sensor) |

## MONITOR DESCRIPTION

The ATF temperature sensor converts the ATF temperature to an electrical resistance value. Based on the resistance, the ECM determines the ATF temperature and detects an open or short in the ATF temperature circuit or a fault in the ATF temperature sensor.
After running the vehicle for a certain period, the ATF temperature should increase. If the ATF temperature is below 20°C (68°F) after running the vehicle for a certain period, the ECM interprets this as a fault, and turns on the MIL.
When the ATF temperature is 110°C (230°F) or more after 17 minutes of engine cold start, the ECM also determines this as a fault, turns on the MIL, and stores the DTC.

## MONITOR STRATEGY

| | |
|---|---|
| Related DTCs | P0711: ATF temperature sensor/Rationality check |
| Required sensors/Components | ATF temperature sensor (TFT sensor) |
| Frequency of operation | Continuous |
| Duration | 3 sec.: Condition (A), (B), (C)<br>Continuous.: Condition (D) |
| MIL operation | 2 driving cycles |
| Sequence of operation | None |

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## TYPICAL ENABLING CONDITIONS

**All:**

| | |
|---|---|
| The monitor will run whenever this DTC is not present. | None |
| TFT sensor circuit | Not circuit malfunction |
| ECT sensor circuit | Not circuit malfunction |
| IAT sensor circuit | Not circuit malfunction |
| ETCS | Not circuit malfunction |

**Condition (A):**

| | |
|---|---|
| Time after engine start | 18 min. and 20 sec. |
| Driving distance after engine start | 9 km (5.6 mile) or more |
| IAT (Intake air temperature) (12 sec. after starting engine) | -10°C (14°F) or more |
| ECT (12 sec. after starting engine) | -10°C (14°F) or more |

**Condition (B):**

| | |
|---|---|
| Time after engine start | 30 min. |
| Driving distance after engine start | 15 km (9.3 mile) or more |

| | |
|---|---|
| IAT (Intake air temperature) (12 sec. after starting engine) | -15°C (5°F) or more |
| ECT (12 sec. after starting engine) | -15°C (5°F) or more |

**Condition (C):**

| | |
|---|---|
| Time after engine start | 40 min. |
| Driving distance after engine start | 20 km (124 mile) or more |

**Condition (D):**

| | |
|---|---|
| ECT (12 sec. after engine start) | Less than 35°C (95°F) |

## TYPICAL MALFUNCTION THRESHOLDS

**Condition (A), (B), (C):**

| | |
|---|---|
| ATF temperature sensor | Less than 20°C (68°F) |

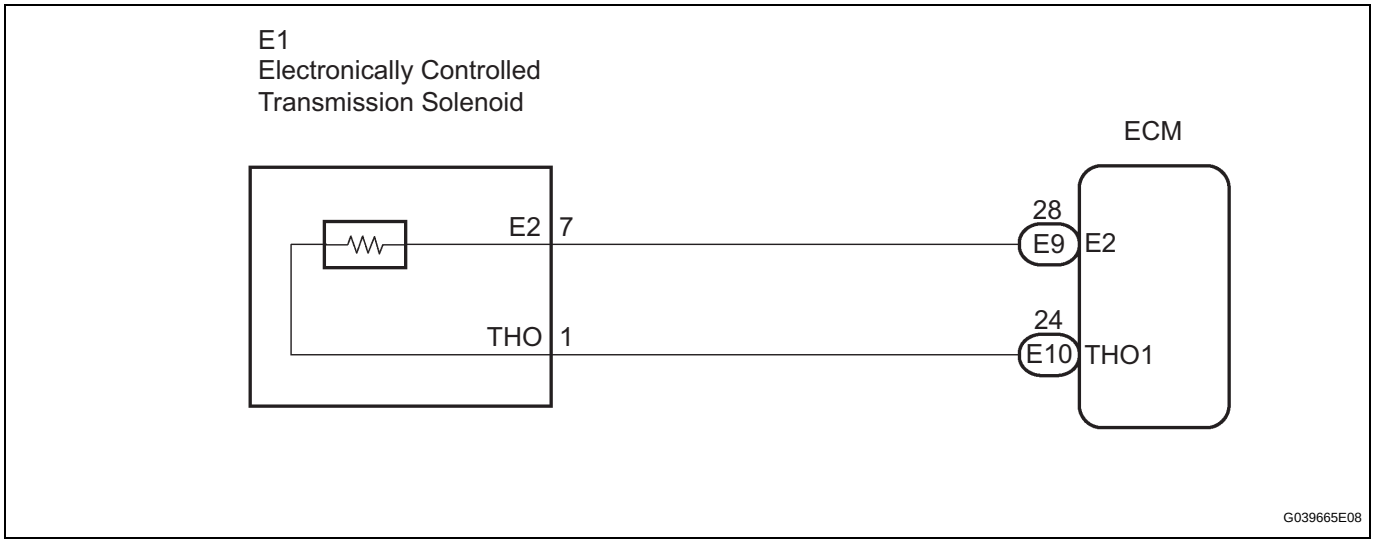
**Condition (D):**

| | |
|---|---|
| ATF temperature sensor | 110°C (230°F) or more |

## COMPONENT OPERATING RANGE

| | |
|---|---|
| ATF temperature sensor | Atmospheric temperature to approx. 130°C (266°F) |

## WIRING DIAGRAM

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## INSPECTION PROCEDURE

HINT:

Using the intelligent tester to read the DATA LIST allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the DATA LIST information early in troubleshooting is one way to save diagnostic time.

**NOTICE:**

**In the table below, the value listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether apart is faulty or not.**

**1. READ DATA LIST**

(a) Warm up the engine.

(b) Turn the ignition switch off.

(c) Connect the intelligent tester together with the CAN VIM (controller area network vehicle interface module) to the DLC3.

(d) Turn the ignition switch to the ON position.
(e) Turn on the tester.
(f) Select the item "DIAGNOSIS / ENHANCED OBD II / DATA LIST".
(g) According to the display on the tester, read the "DATA LIST".

| Tester Display | Measurement Item/Range | Normal Condition | Diagnostic Note |
|---|---|---|---|
| A/T OIL TEMP 1 | ATF Temp. Sensor Value/<br>min.: -40°C (-40°F)<br>max.: 215°C (419°F) | • After Stall Test;<br>Approx. 80°C (176°F)<br>• Equal to ambient temperature when cold soak | If the value is "-40°C (-40°F)" or "215°C (419°F)", ATF temp. sensor circuit is opened or shorted. |

HINT:
When DTC P0712 is output and OBD II scan tool or intelligent tester output is 150°C (302°F), there is a short circuit.
When DTC P0713 is output and OBD II scan tool or intelligent tester output is -40°C (-40°F), there is an open circuit.
Measure the resistance between terminal THO1 (THO) and body ground.

| Temperature Displayed | Malfunction |
|---|---|
| -40°C (-40°F) | Open circuit |
| 150°C (302°F) or more | Short circuit |

HINT:
If a circuit related to the ATF temperature sensor becomes open, P0713 is immediately set (in 0.5 second).
When P0713 is set, P0711 cannot be detected.
It is not necessary to inspect the circuit when P0711 is set.

**1 CHECK OTHER DTCS OUTPUT (IN ADDITION TO DTC P0711)**

(a) Connect the intelligent tester together with the CAN VIM (controller area network vehicle interface module) to the DLC3.
(b) Turn the ignition switch to the ON position and push the OBD II scan tool or the intelligent tester main switch ON.
(c) When you use intelligent tester:
Select the item "DIAGNOSIS / ENHANCED OBD II / DTC INFO / CURRENT CODES".
(d) Read the DTCs using the OBD II scan tool or the intelligent tester.

**Result**

| Result | Proceed to |
|---|---|
| P0711 | A |
| P0711 and other DTCs | B |

HINT:
If any other codes besides "P0711" are output, perform troubleshooting for those DTCs first.

B → GO TO DTC CHART

A

| | |
|---|---|
| 2 | CHECK TRANSMISSION FLUID LEVEL |

**OK:**

**Automatic transmission fluid level is correct.**

**NG** → **ADD FLUID**

**OK**

**REPLACE TRANSMISSION WIRE (ATF TEMPERATURE SENSOR)**