

DTC P2742 Transmission Fluid Temperature Sensor "B" Circuit Low Input**DTC P2743 Transmission Fluid Temperature Sensor "B" Circuit High Input**for Preparation [Click here](#)**DESCRIPTION**

The Automatic Transmission Fluid (ATF) temperature sensor is on the transmission, just in front of the oil cooler inlet pipeline. If the ECM detects an abnormally high ATF temperature near this sensor, a message is displayed on the multi-information display.

HINT:

- **The temperature of the ATF easily rises when towing, climbing hills, in traffic, etc.**
- **If the ATF temperature sensor becomes short-circuited, the signal that indicates that the ATF temperature is 150°C (302°F) or higher is input into the ECM.**

Vehicle conditions when the sensor is normal and when the sensor is short-circuited are indicated in the table below.

No. 2 ATF Temperature Sensor State	Detection Condition	Symptom	Recovery Condition
Sensor is normal	ATF temperature higher than 150°C (302°F)	Message is displayed on multi-information display	ATF temperature below 135°C (275°F)*1
	ATF temperature higher than 130°C (266°F)	Shift point too high	ATF temperature below 110°C (230°F)
	When conditions (a) and (b) are satisfied. (a) ATF temperature higher than 130°C (266°F) (b) Engine coolant temperature higher than 95°C (203°F)	Lock-up in 3rd gear*2	ATF temperature below 110°C (230°F)*1 and engine coolant temperature higher than 95°C (203°F)
Sensor is short-circuited	Any conditions	<ul style="list-style-type: none"> • Message is displayed on multi-information display • Shift point too high 	Symptoms persist
	Engine coolant temperature higher than 95°C (203°F)	Lock-up in 3rd gear*2	Symptoms persist

HINT:

*1: When the ATF is normal, it decreases to below 135°C (275°F) within 5 minutes with the shift lever in P or N in an idling state.

*2: When ATF temperature is normal, transmission lock-up occurs in 5th or 6th gear with the shift lever in D or with the S6 range selected, in 5th gear with the S5 range selected, and in 4th gear with the S4 range selected.

DTC Code	DTC Detection Condition	Trouble Area
P2742	No. 2 ATF temperature sensor resistance is below 25 Ω (0.046 V) for 0.5 seconds or more (1-trip detection logic).	<ul style="list-style-type: none"> • Short in No. 2 ATF temperature sensor circuit • Transmission wire (No. 2 ATF temperature sensor) • ECM
P2743	One of the following conditions is met (1-trip detection logic): (A) 15 min. or more have elapsed after the engine start when the engine coolant temperature or intake air temperature is -29.375°C (-20.875°F) or less, and the ATF temperature sensor resistance is higher than 156 kΩ (4.915 V) for 0.5 sec. or more. (B) 10 sec. or more have elapsed after the engine start when the engine coolant temperature and intake air temperature are higher than -29.375°C (-20.875°F), and the ATF temperature sensor resistance is higher than 156 kΩ (4.915 V) for 0.5 sec. or more.	<ul style="list-style-type: none"> • Open in No. 2 ATF temperature sensor circuit • Transmission wire (No. 2 ATF temperature sensor) • ECM

MONITOR DESCRIPTION

The ATF temperature sensor converts the ATF temperature into an electrical resistance value. Based on the resistance, the ECM determines the ATF temperature, and the ECM detects an open or short in the ATF temperature circuit. If the resistance value of the ATF temperature sensor is below 25 Ω*1 or higher than 156 kΩ*2, the ECM interprets this as a fault in the ATF sensor or wiring. The ECM will display a message on the multi-information display and store the DTC.

HINT:

- ***1: 150°C (302°F) or higher is indicated regardless of the actual ATF temperature.**
- ***2: -40°C (-40°F) is indicated regardless of the actual ATF temperature.**
- **The ATF temperature can be checked on the intelligent tester display.**

WIRING DIAGRAM

Refer to DTC P0712 ([Click here](#)).

INSPECTION PROCEDURE**DATA LIST****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 values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

- a. Warm up the engine.
- b. Turn the engine switch off.
- c. Connect the intelligent tester to the DLC3.
- d. Turn the engine switch on (IG).
- e. Turn the intelligent tester on.
- f. Enter the following menus: Powertrain / Engine and ECT / Data List.
- g. According to the display on the tester, read the Data List.

Engine and ECT

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
A/T Oil Temperature 2	No. 2 ATF temperature sensor value/ Min.: -40°C (-40°F) Max.: 215°C (419°F)	<ul style="list-style-type: none"> • After stall test: Approximately 80°C (176°F) • Equal to ambient temperature when engine cold 	If the value is -40°C (-40°F) or 215°C (419°F), the No. 2 ATF temperature sensor circuit is open or shorted.

HINT:

- When DTC P2742 is output and the intelligent tester output is 150°C (302°F) or higher, there is a short circuit.
- When DTC P2743 is output and the intelligent tester output is -40°C (-40°F), there is an open circuit. Check the temperature displayed on the tester in order to check if a malfunction exists.

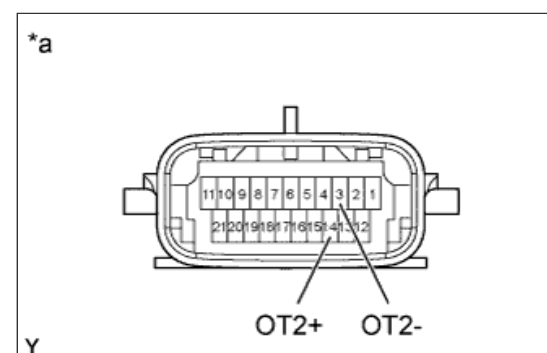
Temperature Displayed	Malfunction
-40°C (-40°F)	Open circuit
150°C (302°F) or higher	Short circuit

1.INSPECT TRANSMISSION WIRE (NO. 2 ATF TEMPERATURE SENSOR)

- a. Disconnect the C24 transmission wire connector.
- b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
3 (OT2-) - 14 (OT2+)	Always	25 Ω to 156 kΩ
3 (OT2-) - Body ground	Always	10 kΩ or higher
14 (OT2+) - Body ground	Always	10 kΩ or higher



HINT:

If the resistance is out of the specified range at any of the ATF temperatures shown in the table below, the driveability of the vehicle may decrease.

Standard Resistance:

ATF Temperature	Specified Condition
10°C (50°F)	5 to 8 kΩ
25°C (77°F)	2.5 to 4.5 kΩ
110°C (230°F)	0.22 to 0.28 kΩ

Text in Illustration

*a	Component without harness connected (Transmission Wire)
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REPAIR OR REPLACE TRANSMISSION WIRE (NO. 2 ATF TEMPERATURE SENSOR) ([Click here](#))

OK

2.CHECK HARNESS AND CONNECTOR (TRANSMISSION WIRE - ECM)

- a. Disconnect the C29 and C30 ECM connectors.

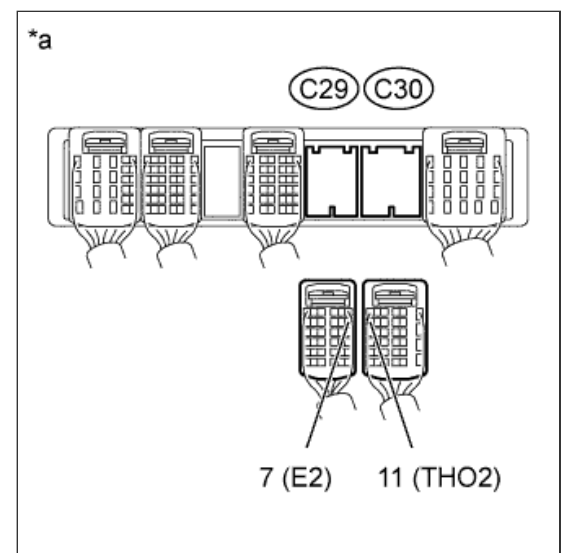
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
C30-11 (THO2) - C29-7 (E2)	Always	25 Ω to 156 kΩ
C30-11 (THO2) - Body ground	Always	10 kΩ or higher
C29-7 (E2) - Body ground	Always	10 kΩ or higher

Text in Illustration

*a	Front view of wire harness connector (to ECM)
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REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE ECM ([Click here](#))