

DTC	P2740	Transmission Fluid Temperature Sensor "B" Circuit
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DTC	P2742	Transmission Fluid Temperature Sensor "B" Circuit Low Input
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DTC	P2743	Transmission Fluid Temperature Sensor "B" Circuit High Input
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CIRCUIT DESCRIPTION

The ATF temperature sensor converts fluid temperature into a resistance value which is input in to the ECM. ATF temperature sensor No.2 is on the transmission and just before the oil cooler inlet pipeline. If ECM detects the abnormally high temperature of ATF by this sensor, it draws driver's attention by illuminating the warning lamp.

HINT:

- The temperature of ATF easily raises when towing, climbing hills and in traffic, etc.
- If the ATF temperature sensor No.2 shorts, the signal that indicates the ATF temperature is 150°C (302°F) or higher is input in ECM.

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

ATF temperature No.2 Sensor State	Detection Condition	Symptom	Recovery Condition
Sensor is normal	• AT fluid temp. more than 150°C (302°F).	• AT Oil Temp. warning light remains on	• AT fluid temp. less than 135°C (275°F). *1
	• AT fluid temp. more than 130°C (266°F).	• Shift point too high.	• AT fluid temp. less than 110°C (230°F).
Sensor is in short	• Any conditions.	• AT Oil Temp. warning light remains on • Shift point too high.	• Symptoms still occur

HINT:

*1: When AT fluid temperature is in normal range, it decreases to less than 135°C within 5 minutes with the shift lever in P or N position in a idling state.

DTC No.	DTC Detecting Condition	Trouble Area
P2740	(a) and (b) is detected momentary within 0.5 sec. when neither P2742 or P2743 is not detected (1-trip detection logic) (a) ATF temperature sensor resistance is less than 79 Ω. (b) ATF temperature sensor resistance is more than 156 kΩ. HINT: Within 0.5 sec. the malfunction switches from (a) to (b) or from (b) to (a)	• Open or short in ATF temperature sensor No. 2 circuit • ATF temperature sensor No. 2 • ECM
P2742	ATF temperature sensor resistance is less than 79 Ω. for 0.5 sec. or more (1-trip detection logic)	
P2743	DTC is detected for 0.5 sec. or more (1-trip detection logic) ATF temperature sensor resistance is more than 156 kΩ. after started engine for 15 minutes or more	

MONITOR DESCRIPTION

The automatic transmission fluid (ATF) temperature sensor converts ATF temperature to an electrical resistance value. Based on the resistance, the ECM determines the ATF temperature, and the ECM detects an opens or shorts in the ATF temperature circuit. If the resistance value of the ATF temperature is less than 79 Ω or more than 156 k Ω , the ECM interprets this as a fault in the ATF sensor or wiring. The ECM will turn on the MIL and store the DTC.

MONITOR STRATEGY

Related DTCs	P2740	ATF temperature sensor/Range check (Chattering)
	P2742	ATF temperature sensor/Range check (Low resistance)
	P2743	ATF temperature sensor/Range check (High resistance)
Required sensors/Components	ATF temperature sensor	
Frequency of operation	Continuous	
Duration	0.5 sec.	
MIL operation	Immediate	
Sequence of operation	None	

TYPICAL ENABLING CONDITIONS

Item	Specification	
	Minimum	Maximum
The monitor will run whenever the following DTCs are not present.	See page DI-368	
Range check (Chattering, Low voltage)		
The typical enabling condition is not available.	-	
Range check (High voltage)		
Time after engine start	15 min. or more	-

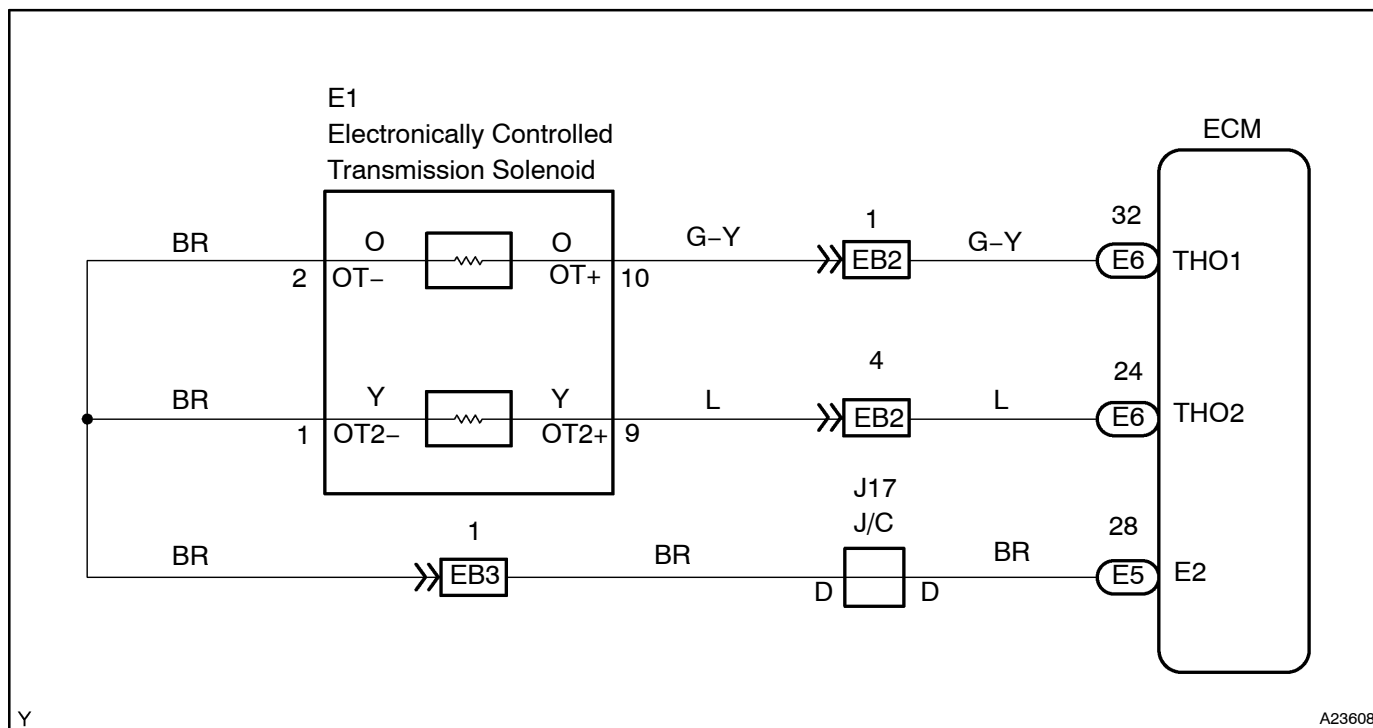
TYPICAL MALFUNCTION THRESHOLDS

Detection criteria	Threshold
Range check (Chattering)	
ATF temperature sensor voltage	Less than 0.046 V or More than 4.915 V
Range check (Low voltage)	
ATF temperature sensor voltage	Less than 0.046 V
Range check (High voltage)	
ATF temperature sensor voltage	More than 4.915 V

COMPONENT OPERATING RANGE

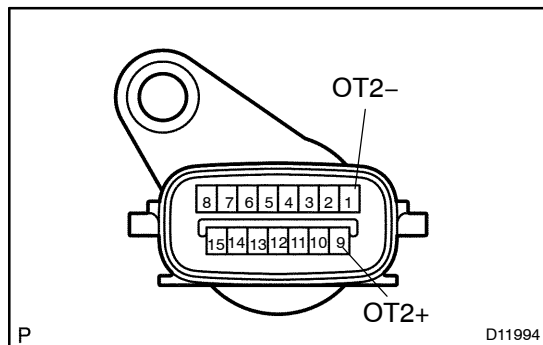
Parameter	Standard value
ATF temperature sensor	Atmospheric temperature to approx. 130°C (266°F)

WIRING DIAGRAM



INSPECTION PROCEDURE

1 Check transmission wire.

**PREPARATION:**

Disconnect the transmission wire connector from the transmission.

CHECK:

Measure the resistance between terminals OT2+ and OT2-.

OK:

79 Ω to 156 k Ω

CHECK:

Measure resistance between terminals OT2+ and OT2- of the transmission wire connector and body ground.

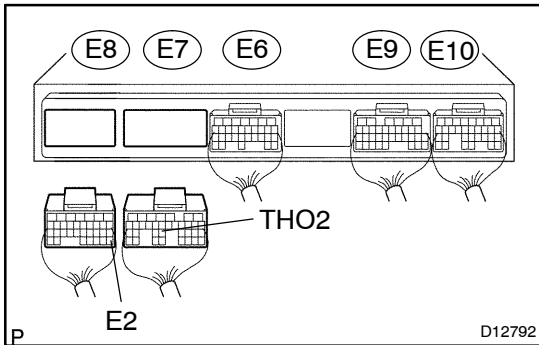
OK:

Resistance: 1 M Ω or higher

NG

Replace the transmission wire (ATF temperature sensor).

OK

2**Measure resistance between terminal THO2 and E2 of ECM connector.****PREPARATION:**

- (a) Connect the transmission wire connector.
- (b) Disconnect the connector of the ECM.

CHECK:

Measure the resistance between terminals THO2 and E2.

OK:**79 Ω to 156 k Ω** **CHECK:**

Measure resistance between terminals THO2 and E2 of the ECM connector and body ground.

OK:**Resistance: 1 M Ω or higher****NG****Repair or replace the harness or connector
(See page [IN-36](#)).****OK****Check and replace the ECM (See page [IN-36](#)).**