

DTC	P0116	Engine Coolant Temp. Circuit Range/Performance Problem
------------	--------------	---

CIRCUIT DESCRIPTION

Refer to DTC P0115 on page [DI-31](#).

DTC No.	DTC Detection Condition	Trouble Area
P0116	If THW < -6.7°C (19.4°F) or THA < -6.7°C (19.4°F) 20 min. or more after starting engine, engine coolant temp. sensor value is 15°C (59°F) or less (2 trip detection logic)	<ul style="list-style-type: none"> • Cooling system • Engine coolant temp. sensor
	If THW \geq -6.7°C (19.4°F) and THA \geq -6.7°C (19.4°F) and 10°C (50°F) at engine start, 5 min. or more after starting engine, engine coolant temp. sensor value is 30°C (86°F) or less (2 trip detection logic)	
	If THW \geq 10°C (50°F) and THA \geq 10°C (50°F) at engine start, 2 min. or more after starting engine, engine coolant temp. sensor value is 20°C (68°F) or less (2 trip detection logic)	
	When THW \geq 35°C (95°F) and 60°C (140°F), THA \geq -6.7°C (19.4°F) when starting engine, conditions (a) and (b) continue (2 trip detection logic) (a) Vehicle speed is changing (Not stable) (b) Water temp. change is lower than 3°C (5.4°F) from water temp. since when starting engine	
	In case that reading value of water temp. sensor will not change more than 1°C (1.8°F) even after repeating 6 trips (detection logic) of adjusting speed pattern with THW more than 60°C (140°F) when starting engine	

INSPECTION PROCEDURE

HINT:

- If DTCs P0115 and P0116 are output simultaneously, engine coolant temp. sensor circuit may be open. Perform troubleshooting of DTC P0115 first.
- Read freeze frame data using TOYOTA hand-held tester or OBD II scan tool, as freeze frame data records the engine conditions when a malfunction is detected. When troubleshooting, it is useful for determining whether the vehicle was running or stopped, the engine was warmed up or not, the air-fuel ratio was lean or rich, etc. at the time of the malfunction.

1	Are there any other codes (besides DTC P0116) being output?
----------	--

YES

Go to relevant DTC chart (See page [DI-14](#)).

NO

2	Check thermostat (See page CO-11).
----------	---

NG

Replace thermostat.

OK

Replace engine coolant temperature sensor.