

DTC	P0116	Engine Coolant Temp. Circuit Range/Performance Problem
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CIRCUIT DESCRIPTION

Refer to DTC P0115 on page [DI-213](#).

DTC No.	DTC Detecting 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)*1 or 20°C (68°F)*2 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)*1 or 20°C (48°F)*2 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)*1 or 30°C (86°F)*2 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	

*1: Except California Spec.

*2: California Spec.

INSPECTION PROCEDURE

HINT:

- If DTCs P0115 and P0116 are output simultaneously, engine coolant temperature 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. Because freeze frame records the engine conditions when the 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?
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YES	Go to relevant DTC chart (See page DI-192).
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NO

2	Check thermostat (See page CO-11).
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NG	Replace thermostat.
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OK

Replace engine coolant temperature sensor.