DTC	P0116	Engine Coolant Temperature Circuit Range/ Performance Problem

CIRCUIT DESCRIPTION

Refer to DTC P0115 on page DI– 56.

DTC No.	DTC Detecting Condition	Trouble Area
P0116	If the engine coolant temperature was 35 °C (95 °F) or more but less than 60 °C (140°F) when the engine is started, and if conditions (a) and (b) are met: (a) Vehicle has accelerated and decelerated. (b) Engine coolant temperature remains within 3 °C (5.4 °F) of the initial engine coolant temperature (2 trip detection logic)	• Engine coolant temperature sensor
	• If the engine coolant temperature is more than 60 °C (140°F) when the engine is started and the vehicle has accelerated and decelerated • If the engine coolant temperature sensor records a temperature variation below 1°C (1.8°F) successively 6 times (6 trip detection logic)	

MONITOR DESCRIPTION

The ECT (Engine Coolant Temperature) sensor is used to monitor the engine coolant temperature. The ECT sensor has a thermistor that varies its resistance depending on the temperature of the engine coolant. When the coolant temperature is low, the resistance in the thermistor increases. When the temperature is high, the resistance drops. The variations in resistance are reflected in the voltage output from the sensor. The engine control ECU monitors the sensor voltage and uses this value to calculate the engine coolant temperature. When the sensor output does not change, the engine control ECU interprets this as a fault in the ECT sensor and sets a DTC.

Examples:

(1) Upon starting the engine, the ECT is between 35 °C (95 °F) and 60 °C (140°F). If after driving for 250 sec., the ECT still remains within 3 °C (5.4 °F) of the starting temperature, a DTC will be set (2 trip detection logic).

(2) Upon starting the engine, the ECT is over 60 °C (140°F). If after driving for 250 sec., the ECT still remains within 1°C (1.8°F) of the starting temperature, a DTC will be set (6 trip detection logic).

INSPECTION PROCEDURE

HINT:

- If DTC P0 115, P0 116, P0 117, P0 118 and P0 125 are output simultaneously, ECT sensor circuit may be open or shorted. Perform the troubleshooting of DTC P0 115, P0 117 o r P 0118 first.
- Read freeze frame data using the hand –held tester. Freeze frame data records the engine conditions when a malfunction is detected. When troubleshooting, freeze frame data can help determine if the vehicle was running or stopped, if the engine was warmed up or not, if the air –fuel ratio was lean or rich, as well as other data from the time when a malfunction occurred.

Replace engine coolant temperature sensor.