DTC	P0116	ENGINE COOLANT TEMPERATURE CIRCUIT RANGE/PERFORMANCE PROBLEM

CIRCUIT DESCRIPTION

Refer to DTC P0115 on page 05–74.

DTC No.	DTC Detection Condition	Trouble Area
P0116	If the Engine Coolant Temperature (ECT) is 35 to 60°C (95 to 140°F) when the engine is started, and if conditions (a) and (b) are met: (a) Vehicle has accelerated and decelerated (b) ECT remains within 3°C (5.4°F) of the initial ECT (2 trip detection logic)	• Cooling system • ECT sensor
P0116	• If the ECT is more than 60°C (140°F) when the engine is started and the vehicle has accelerated and decelerated • If the ECT sensor records an ECT variation below 1°C (1.8°F) successively 6 times (6 trip detection logic)	• Cooling system • ECT sensor

MONITOR DESCRIPTION

The ECT 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 ECM monitors the sensor voltage and uses this value to calculate the ECT. When the sensor output voltage deviates from the normal operating range, the ECM 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 seconds, 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 seconds, the ECT still remains within 1°C (1.8°F) of the starting temperature, a DTC will be set (6 trip detection logic).

WIRING DIAGRAM

Refer to DTC P0115 on page 05–74.

INSPECTION PROCEDURE

HINT:

- If DTC P0115, P0116, P0117, P0118 and P0125 are output simultaneously, ECT sensor circuit may be open or shorted. Perform the troubleshooting of DTC P0115, P0117 or P0118 first.
- Read freeze frame data using the Intelligent Tester II. 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, and other data from the time the malfunction occurred.

REPLACE ECT SENSOR