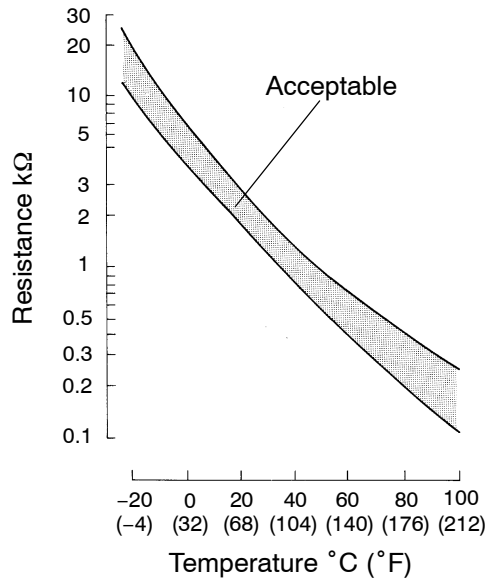
DI6JX–01

DTC	22	Water Temp. Sensor Circuit Malfunction

CIRCUIT DESCRIPTION

Fig. 1



The water temperature sensor senses the coolant temperature. A thermistor built into the sensor changes the resistance value according to the coolant temperature. The lower the coolant temperature, the greater the thermistor resistance value, and the higher the coolant temperature, the lower the thermistor resistance value (See Fig. 1).

The water temperature sensor is connected to the engine ECU (See below). The 5 V power source voltage in the engine ECU is applied to the water temperature sensor from the terminal THW via a resistor R. That is, resistor R and the water temperature sensor are connected in series. When the resistance value of the water temperature sensor changes in accordance with changes in the coolant temperature, the potential at the terminal THW also changes. Based on this signal, the engine ECU increases the fuel injection volume to improve driveability during cold engine operation.

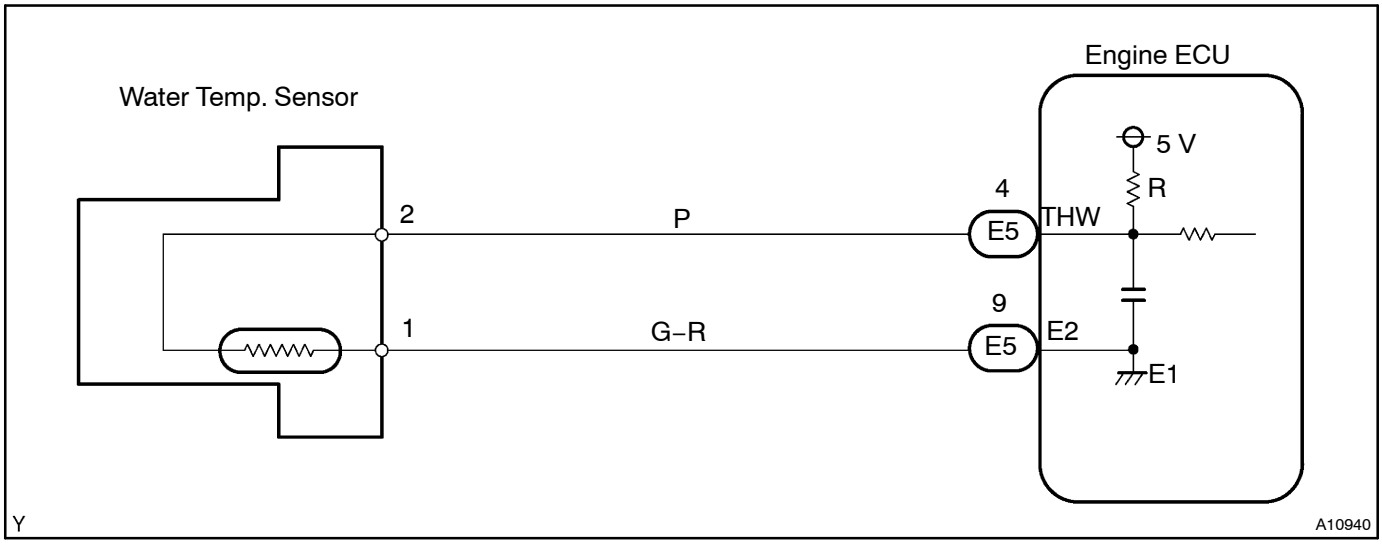
DTC No.	DTC Detecting Condition	Trouble Area
22	Resistance value of water temp. sensor circuit goes out of compensentation value for 0.5 sec. or more	• Open or short in water temp. sensor circuit • Water temp. sensor • Engine ECU

HINT:

After confirming DTC 22, use the hand–held tester to confirm the water temperature from the CURRENT DATA.

Temperature displayed	Malfunction
–40°C (–40°F)	Open circuit
140°C (284°F) or more	Short circuit

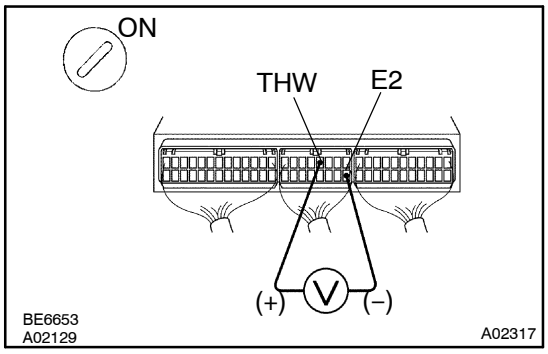
WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:
If DTCs 22, 24 and 39 are output simultaneously, E2 (sensor ground) may be open.

1	**Check voltage between terminals THW and E2 of engine ECU connector.**



PREPARATION:

(a) Remove the glove compartment (See page ED–25).
(b) Turn the ignition switch ON.

CHECK:

Measure the voltage between terminals THW and E2 of the engine ECU connector.

OK:

Water Temp. °C(°F)	Voltage
20 (68) (Engine is cool)	2.7 – 2.9 V
80 (176) (Engine is hot)	1.6 V

OK	**Check for intermittent problems (See page DI–3).**

NG

2	**Check water temperature sensor (See page ED–15).**

NG	**Replace water temperature sensor.**

OK

3	**Check for open and short in harness and connector between engine ECU and water temperature sensor (See page IN–20).**

NG → **Repair or replace harness or connector.**

OK

Check and replace engine ECU (See page IN–20).