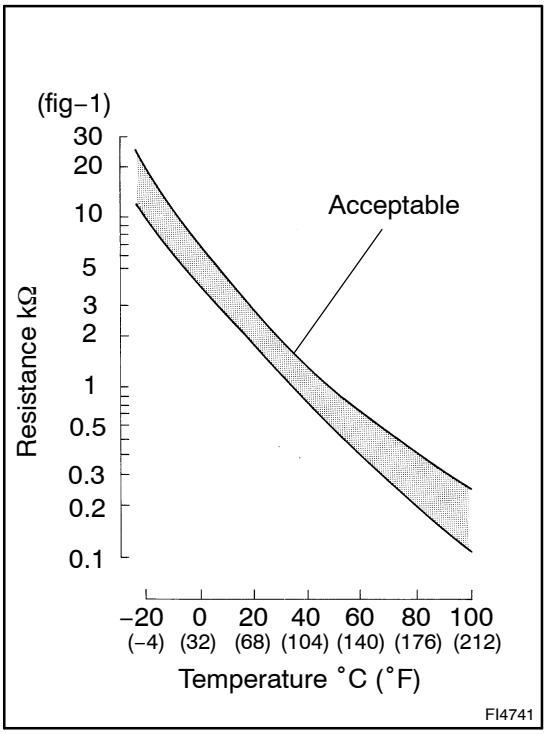
DI3UE–01

DTC	22	Water Temp. Sensor Circuit Malfunction

CIRCUIT DESCRIPTION

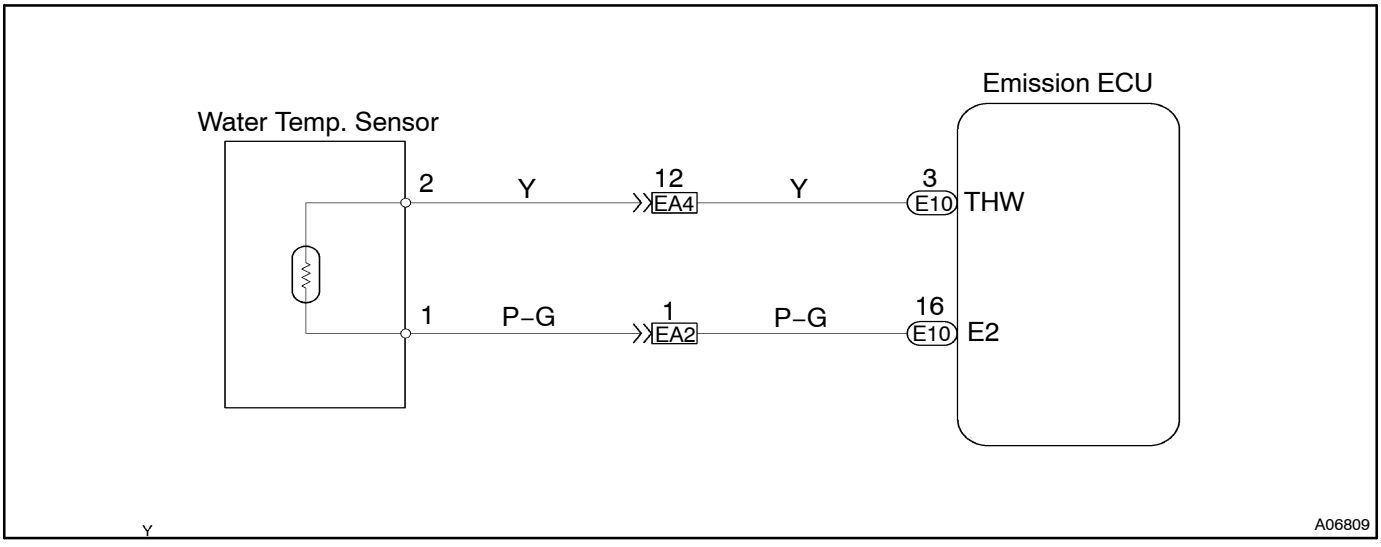


The water temperature sensor senses the coolant temperature. A thermistor built into the sensor changes the resistance value according to the coolant temperature. The lower the coolant temperature, the greater the thermistor resistance value, and the higher the coolant temperature, the lower the thermistor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

The water temperature sensor is connected to the emission ECU (See below). The 5 V power source voltage in the emission ECU is applied to the water temperature sensor from the terminal THW via a resistor R. That is, the 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 emission ECU increases the fuel injection volume to improve driveability during cold engine operation.

DTC No.	DTC Detecting Condition	Trouble Area
22	Open or short in water temp. sensor circuit for 0.5 sec. or more	• Open or short in water temp. sensor circuit • Water temp. sensor • Emission ECU

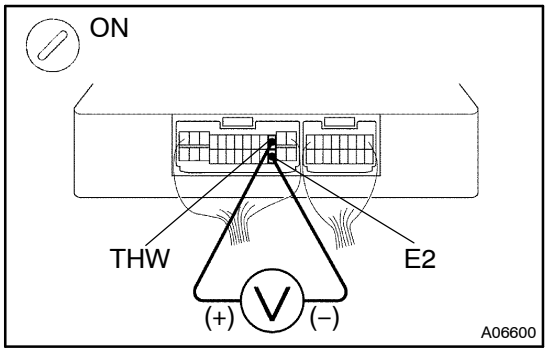
WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:
If DTC ”22” (water temperature sensor circuit), ”31” (vacuum sensor circuit) and ”41” (throttle position sensor circuit) are output simultaneously, E2 (sensor ground) may be open.

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



PREPARATION:

(a) Disconnect the emission ECU from the body panel. (See page EC–10)

(b) Turn the ignition switch ON.

CHECK:

Measure voltage between terminals THW and E2 of emission ECU.

OK:

Engine Coolant Temp.	Voltage
20°C (68°F) (Engine is cool)	0.5 – 3.4 V
80°C (176°F) (Engine is hot)	0.2 – 1.0 V

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

NG

2	**Check water temp. sensor. (See page DI–17)**

NG → **Replace water temp. sensor.**

OK

3	**Check for open and short in harness and connector between emission ECU and water temp. sensor. (See page IN–19)**

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

OK

Check and replace emission ECU.