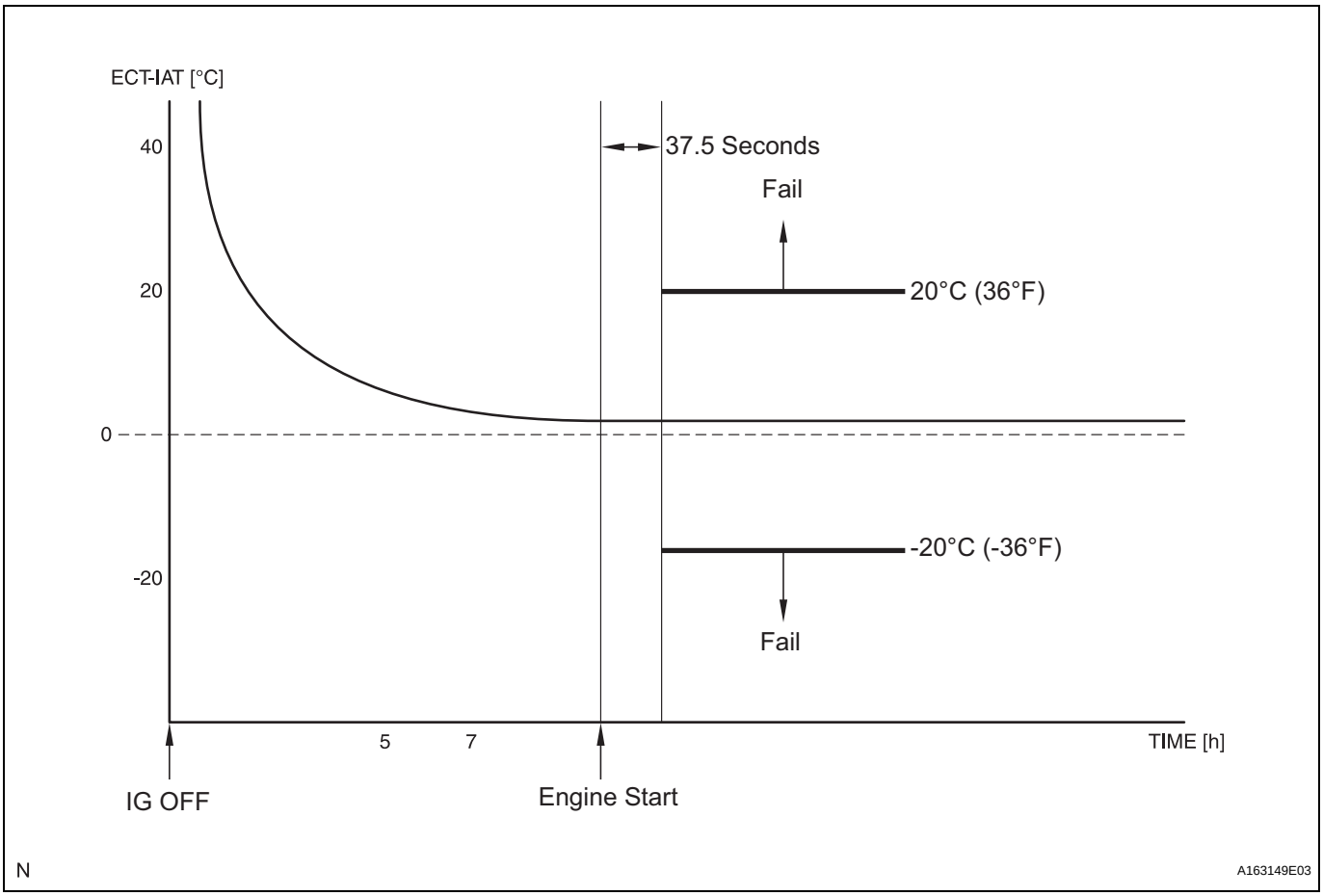
DTC	P011B	Engine Coolant Temperature / Intake Air Temperature Correlation

DESCRIPTION

The ECM calculates the difference between the readings of the coolant temperature sensor and intake air temperature sensor. If the difference is greater than 20°C (68°F), the ECM will judge this as a malfunction and will set this DTC.

DTC No.	DTC Detection Condition	Trouble Area
P011B	When conditions (a), (b), (c), (d) and (e) are met (2 trip detection) (a) Battery voltage is 10.5 V or more (b) 37.5 seconds after the engine has been started after the ignition switch has been OFF for more than 7 hours (c) The minimum intake air temperature after the engine has been started is more than -10°C (14°F) (d) The average coolant temperature before the engine is started is more than -10°C (14°F) (e) The difference between the readings of the ECT and IAT is greater than 20°C (36°F)	• IAT sensor • ECT sensor • ECM



HINT:

- Waiting is required to prevent the temperature of the engine from affecting the readings. If the engine has been operated recently, it will not be possible to accurately compare the readings.
- For diagnosis, in order to duplicate the detection conditions of the DTC, it is necessary to park the vehicle for 7 hours. Parking the vehicle for 7 hours ensures that the actual temperature of the ECT and IAT are very similar. When the vehicle has been parked for less than 7 hours, differences in the readings may exist, this does not necessarily indicate a fault.

MONITOR STRATEGY

Related DTCs	P011B: ECT / IAT sensor correlation
Required Sensors / Components (Main)	ECT / IAT sensor
Required Sensors / Components (Related)	-
Frequency of Operation	Continuous
Duration	2 driving cycles
MIL Operation	2 driving cycles
Sequence of Operation	None

TYPICAL ENABLING CONDITIONS

The monitor will run whenever these DTCs are not present	None
All of following conditions is met	Condition 1 and 2
1. All of following conditions is met	Condition (a), (b), (c) and (d)
(a) After ignition switch ON and engine not running time	More than 20 seconds
(b) Soak Time	7 hours or more
(c) Battery voltage	10.5 V or more
(d) Time after engine start	37.5 seconds or more
2. Either of the following conditions are met	Condition (a) and (b)
(a) After engine start minimum IAT	-10°C (14°F) or more
(b) Before engine start ECT	-10°C (14°F) or more

ES

TYPICAL MALFUNCTION THRESHOLDS

Deviated ECT minus Deviated IAT	Less than -20°C (-36°F) or more than 20°C (36°F)

INSPECTION PROCEDURE

1	CHECK ANY OTHER DTCS OUTPUT (IN ADDITION P011B)

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch to the ON position.
(c) Turn the tester on.
(d) Enter the following menus: DIAGNOSIS / ENHANCED OBD II / DTC INFO / CURRENT CODES.
(e) Read the DTCs.

Result

Display (DTC Output)	Proceed to
P011B	**A**
P011B and other DTCs	**B**

HINT:
If any DTCs other than P011B are output, troubleshoot those DTCs first.

B → **GO TO DTC CHART**

A

2	READ VALUE OF INTELLIGENT TESTER (INTAKE AIR TEMPERATURE)

(a) Leave the vehicle for 7 hours or more.
HINT:
It is necessary leave the vehicle for 7 hours or more to allow conditions similar to the DTC detection conditions.
(b) Connect the intelligent tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Turn the tester ON.
(e) Enter the following menus: DIAGNOSIS / ENHANCED OBD ll / DATA LIST / PRIMARY / INTAKE AIR.
(f) Read the value displayed on the tester.
OK:
The intake air temperature and the outside air temperature are within 10°C (50°F) of each other.
HINT:
Temperature readings on the vehicle's outside temperature gauge (if equipped) are not suitable for comparing to the IAT reading. The outside temperature gauge has a significant delay built in to prevent temperature swings from being displayed on its display. Use an accurate thermometer to determine the outside air temperature.

NG → **REPLACE MASS AIR FLOW METER (See page ES-504)**

OK

3	READ VALUE OF INTELLIGENT TESTER (COOLANT TEMPERATURE)

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch to the ON position.
(c) Turn the tester ON.
(d) Enter the following menus: DIAGNOSIS / ENHANCED OBD ll / DATA LIST / PRIMARY / COOLANT TEMP.
OK:
The coolant temperature and the outside air temperature are within 10°C (50°F) of each other.
HINT:
If the result is not as specified, check that there are heat sources such as a block heater in the engine compartment.

NG → **REPLACE ENGINE COOLANT TEMPERATURE SENSOR (See page ES-516)**

OK

REPLACE ECM (See page ES-498)