

DTC**P0505****Idle Control System Malfunction****DESCRIPTION**

The idling speed is controlled by the ETCS (Electronic Throttle Control System). The ETCS is comprised of: 1) the one valve type throttle body; 2) the throttle actuator, which operates the throttle valve; 3) the Throttle Position (TP) sensor, which detects the opening angle of the throttle valve; 4) the Accelerator Pedal Position (APP) sensor, which detects the accelerator pedal position; and 5) the ECM, which controls the ETCS. Based on the target idling speed, the ECM controls the throttle actuator to provide the proper throttle valve opening angle.

| DTC No. | DTC Detection Conditions | Trouble Areas |
|---------|--|--|
| P0505 | Idling speed continues to vary greatly from target idling speed (2 trip detection logic) | <ul style="list-style-type: none"> • ETCS • Air induction system • PCV hose connection • ECM |

MONITOR DESCRIPTION

The ECM monitors the idling speed and idling air flow volume to conduct Idle Speed Control (ISC). The ECM determines that the ISC system is malfunctioning if the following conditions apply:

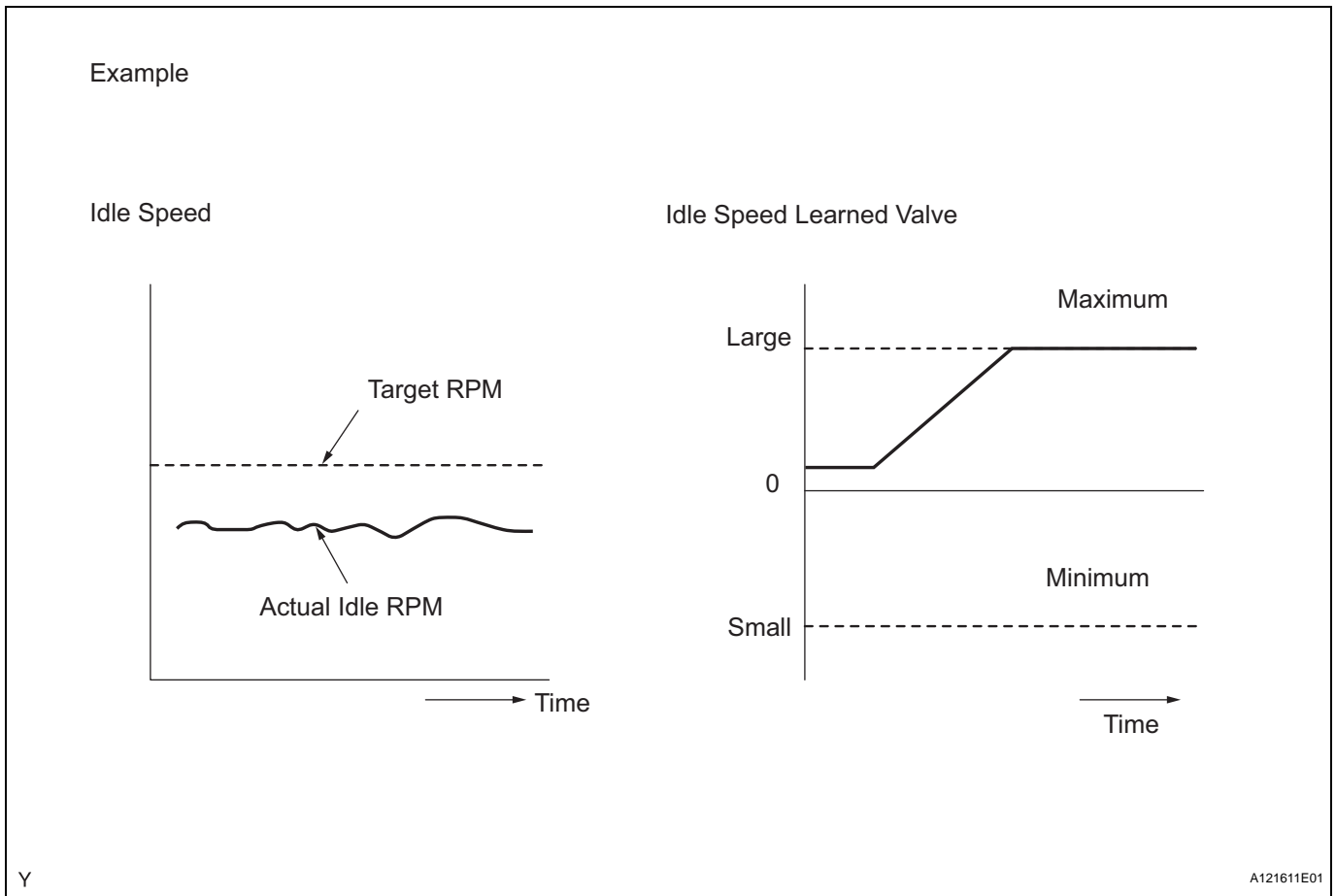
- The learned idling air flow volume remains at the maximum or minimum volume 5 times or more during a drive cycle.
- While driving at 6.25 mph (10 km/h) or more, the actual engine idling speed varies from the target idling speed by between 100 rpm and 200 rpm, 5 times or more during a drive cycle.

Example:

If the actual idling speed varies from the target idling speed by more than 200 rpm* 5 times during a drive cycle, the ECM illuminates the MIL and sets the DTC.

*: Threshold idling speed varies with engine load.

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MONITOR STRATEGY

| | |
|---------------------------------------|---|
| Related DTCs | P0505: ISC Function |
| Required Sensors/Components (Main) | ETCS |
| Required Sensors/Components (Related) | Crankshaft position sensor, Engine coolant temperature sensor, and Vehicle speed sensor |
| Frequency of Operation | Continuous |
| Duration | 10 minutes |
| MIL Operation | 2 driving cycles |
| Sequence of Operation | None |

TYPICAL ENABLING CONDITIONS

Functional check:

| | |
|--|---------|
| Monitor runs whenever following DTCs not present | None |
| Engine | Running |

TYPICAL MALFUNCTION THRESHOLDS

Functional check:

| | |
|--|---|
| Either of following conditions 1 or 2 met | - |
| 1. Frequency that following conditions (a) and (b) met | 5 times or more |
| (a) Engine RPM - target engine RPM (A/C OFF and NSW OFF) | Below -100 rpm, or 150 rpm or more |
| (b) Vehicle condition | Stop after vehicle was driven by 6.25 mph (10 km/h) or more |
| 2. Frequency that following conditions (c) and (d) met | Once |
| (c) Engine RPM - target engine RPM (A/C OFF and NSW OFF) | Below -100 rpm, or 150 rpm or more |
| (d) ISC airflow rate (learning value) | 1.3 L/sec. or less, or 8.5 L/sec. or more |

INSPECTION PROCEDURE

HINT:

- The following conditions may also cause DTC P0505 to be set:
 - (1) The floor carpet overlapping slightly onto the accelerator pedal, causing the accelerator pedal to be slightly depressed and therefore the throttle valve position to be slightly open.
 - (2) The accelerator pedal being not fully released.
- Read freeze frame data using an intelligent tester. Freeze frame data record the engine condition when malfunctions are detected. When troubleshooting, freeze frame data can help determine if the vehicle was moving or stationary, 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.

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1 CHECK ANY OTHER DTCS OUTPUT (IN ADDITION TO DTC P0505)

- (a) Connect an intelligent tester to the DLC3.
- (b) Turn the ignition switch ON.
- (c) Turn the tester ON.
- (d) Select the following menu items: DIAGNOSIS / ENHANCED OBD II / DTC INFO / CURRENT CODES.
- (e) Read DTCs.

Result

| Display (DTC Output) | Proceed To |
|----------------------|------------|
| P0505 | A |
| P0505 and other DTCs | B |

HINT:

If any DTCs other than P0505 are output, troubleshoot those DTCs first.

B → **GO TO DTC CHART (See page ES-57)**

A

2 CHECK PCV HOSE CONNECTIONS

OK:

PCV hose is connected correctly and is not damaged.

NG → **REPAIR OR REPLACE PCV HOSE**

OK

3 CHECK AIR INDUCTION SYSTEM

- (a) Check the air induction system for vacuum leakage.

OK:

No leakage from air induction system.

NG → **REPAIR OR REPLACE AIR INDUCTION SYSTEM**

OK

4 CHECK THROTTLE VALVE

(a) Check the throttle valve condition.

OK:

Throttle valve is not contaminated with foreign objects and moves smoothly.

NG

**REPAIR OR REPLACE THROTTLE WITH
MOTOR BODY ASSEMBLY**

OK

REPLACE ECM (See page [ES-446](#))

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