| DTC | P0121 | THROTTLE/PEDAL POSITION SENSOR/SWITCH "A" CIRCUIT RANGE/PERFORMANCE PROBLEM |
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HINT:
This is the purpose of the "Throttle Position (TP) sensor".

## CIRCUIT DESCRIPTION

Refer to DTC P0120 on page 05–80.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| P0121 | Difference between VTA1 and VTA2 voltage deviates from the malfunction criteria (for 2 seconds) (1 trip detection logic) | • TP sensor<br>• ECM |

## MONITOR DESCRIPTION

The ECM uses the TP sensor to monitor the throttle valve opening angle.
This sensor includes two signals: VTA1 and VTA2. VTA1 is used to detect the throttle opening angle and VTA2 is used to detect malfunctions in VTA1. There are several checks that the ECM performs confirm proper operation of the TP sensor and VTA1.
There is a specific voltage difference expected between VTA1 and VTA2 for each throttle opening angle.
If the voltage output difference of the VTA1 and VTA2 deviates from the normal operating range, the ECM interprets this as a malfunction of the TP sensor. The ECM will turn on the MIL and set a DTC.
This monitor runs for 2 seconds (the first 2 seconds of engine idle) after the engine is started (1 trip detection logic).

## FAIL–SAFE

If the Electronic Throttle Control System (ETCS) has a malfunction, the ECM cuts off current to the throttle actuator. The throttle control valve returns to a predetermined opening angle (approximately 16°) by the force of the return spring. The ECM then adjusts the engine output by controlling the fuel injection (intermittent fuel–cut) and ignition timing in accordance with the accelerator pedal opening angle to enable the vehicle to continue at a minimal speed.
If the accelerator pedal is depressed firmly and slowly, the vehicle can be driven slowly.
If a "pass" condition is detected and then the ignition switch is turned OFF, the fail–safe operation will stop and the system will return to normal condition.

## WIRING DIAGRAM

Refer to DTC P0120 on page 05–80.

## INSPECTION PROCEDURE

HINT:
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 THROTTLE BODY ASSY (See page 10–9) |
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