Suspect Parameter Number (SPN) and Failure Mode Indicator (FMI) Description

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Circuit Description

The engine control module (ECM) supplies bi-directional 12 V power and ground to the electronic throttle control (ETC) motor. The ETC motor is part of the throttle body assembly. The ECM receives inputs from the accelerator pedal and throttle position sensors to determine the required throttle opening. The ECM monitors the current and voltage on the control circuits to determine if the ETC is operating properly.

Conditions to Run SPN

The SPN runs continuously while the ignition is ON.

Conditions to Set SPN

**SPN 3464–3 ETC Control Circuit Open/Short**

The ECM detects the ETC control circuit is open or shorted for greater than 240ms.

**SPN 3464–5 ETC Control Circuit Current Out of Range**

The ECM detects a fault if the current feedback is greater than 10 A for greater than 0.2 seconds, or if the current feedback is less than 0.5 A when the commanded duty cycle is greater than 80 % for more than 2 seconds.
SPN 3664–11 ETC Learned Value Conflict

The ECM detects a fault if the ETC throttle position is less than the learned closed position.

Action Taken When SPN Sets

SPN 3464–3 ETC Control Circuit Open/Short

- The ECM will turn ON the check engine light (CEL)
- 3464-3 is a Type A SPN

SPN 3464–5 ETC Control Circuit Current Out of Range

- The ECM will turn ON the check engine light (CEL)
- 3464-5 is a Type A SPN

SPN 3664–11 ETC Learned Value Conflict

- The ECM will turn ON the check engine light (CEL)
- The ECM will turn ON the stop engine light (SEL)
- The Engine will operate in Reduced Power Mode
- 3664-11 is a Type A SPN

Diagnostic Reference

- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.
- Perform the Diagnostic System Check prior to using this diagnostic.
- Test for intermittent or poor connections.
- Review Schematics and Connector End Views to locate test points.
- Review the SPN Type, Indicator Lamp Definitions, and Conditions to Clear the SPN/Indicator Lamp.
Diagnostic Tips

- Test for intermittent or poor connections.
- Test for sticking, binding, or worn throttle plate or throttle shaft.

Required Tools

- Terminal Test Probe Kit
- Fused Jumper
- Digital Multi-meter
- High Impedance Test Lamp
- Electronic Service Tool

Circuit Diagnostics

**WARNING!** To prevent bodily injury or death, stay away from hot engine surfaces and rotating engine components.

1. Ignition OFF, disconnect the harness connector at the throttle body, connect a test lamp between the ETC close control circuit terminal A and ground.

2. Ignition ON, verify the test lamp turns ON and then turns OFF.

   - **If the test lamp is always OFF,** ignition OFF, disconnect the ECM connector J1-C, test for infinite resistance between the ETC close control circuit terminal A and ground.
     
     - If not infinite resistance, repair the short to ground in the circuit.
     - If infinite resistance, test for less than 5 Ω between the ETC close control circuit terminal A and the ECM harness connector J1-C terminal H4.

     - If 5 Ω or greater, repair the open/high resistance in the circuit.
     - If less than 5 Ω, replace the ECM.
If the test lamp is always ON, ignition OFF, disconnect the ECM connector J1-C, test for less than 1 V between the ETC close control circuit terminal A and ground.

- If 1 V or greater, repair the short to voltage in the circuit.
- If less than 1 V, replace the ECM.

✓ If the test lamp turns ON and OFF, go to Step 3

3. Ignition OFF, connect a test lamp between the ETC open control circuit terminal B and ground, ignition ON, verify the test lamp turns ON and then turns OFF.

- If the test lamp is always OFF, ignition OFF, disconnect the ECM connector J1-C, test for infinite resistance between the ETC open control circuit terminal B and ground.
  - If not infinite resistance, repair the short to ground in the circuit.
  - If infinite resistance, test for less than 5 Ω between the ETC open control circuit terminal B and the ECM harness connector J1-C terminal G4.
    - If 5 Ω or greater, repair the open/high resistance in the circuit.
    - If less than 5 Ω, replace the ECM.

- If the test lamp is always ON, ignition OFF, disconnect the ECM connector J1-C, test for less than 1 V between the ETC open control circuit terminal B and ground.
  - If 1 V or greater, repair the short to voltage in the circuit.
  - If less than 1 V, replace the ECM.

✓ If the test lamp turns ON and OFF, go to Step 4

4. Replace the throttle control assembly.