Overview

<table>
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<tr>
<th>CODE</th>
<th>REASON</th>
<th>EFFECT</th>
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<tbody>
<tr>
<td>Fault</td>
<td>VGT Actuator Controller - Out of Calibration. The VGT has failed the</td>
<td>Low intake manifold pressure.</td>
</tr>
<tr>
<td>Code: 2449</td>
<td>automatic calibration procedure at initial key-ON.</td>
<td></td>
</tr>
<tr>
<td>PID: S027</td>
<td>VGT has failed the automatic calibration procedure at initial key-ON.</td>
<td></td>
</tr>
<tr>
<td>SPN: 641</td>
<td>VGT has failed the automatic calibration procedure at initial key-ON.</td>
<td></td>
</tr>
<tr>
<td>FMI: 13/13</td>
<td>VGT has failed the automatic calibration procedure at initial key-ON.</td>
<td></td>
</tr>
<tr>
<td>LAMP: Red</td>
<td>VGT has failed the automatic calibration procedure at initial key-ON.</td>
<td></td>
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<tr>
<td>SRT:</td>
<td>VGT has failed the automatic calibration procedure at initial key-ON.</td>
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</table>

Circuit Description

The variable geometry turbocharger (VGT) is electronic activated by the VGT actuator. The VGT actuator is a smart device that receives information via the J1939 data link from the primary engine ECM. The VGT actuator performs its own diagnostics and reports errors back to the primary engine ECM using the J1939 data link.

Component Location

The VGT actuator is located on the turbocharger bearing housing.

Conditions for Running the Diagnostics

This diagnostic runs when the keys switch is initially turned to the ON position.

The keys switch must be completely turned OFF for more than 30 seconds before this diagnostic will run at initial key on.

Conditions for Setting the Fault Codes
The internal position reference is **not** detected during the initial power-on due to mechanical system binding or internal condition. The actual VGT actuator position is **not** known.

**Action Taken When the Fault Code is Active**

- The ECM illuminates the red STOP ENGINE light immediately when the diagnostic runs and fails.
- VGT actuation will be disabled.
- Active and stationary regeneration of the aftertreatment system is disabled.

**Conditions for Clearing the Fault Code**

The keyswitch **must** be completely turned OFF for more than 30 seconds before this diagnostic will run at initial key on.

The fault code will clear at key-ON if the error condition no longer exists. The ECM will turn off the red STOP ENGINE light and enable VGT operation immediately after the diagnostic runs and passes.

**Shop Talk**

Verify the ECM calibration is correct. Check the calibration revision history found on QuickServe™ Online for applicable fixes to the calibration stored in the ECM. If necessary, calibrate the ECM. Refer to Procedure 019-032 in Section 19.

This fault code is logged when one of the following error conditions exists.

- If the turbocharger actuator has just been replaced and this fault code is active, this usually indicates that the turbocharger actuator has **not** been installed correctly. The gear alignment between the actuator and the turbocharger housing is misaligned.
- Foreign material in the VGT turbocharger can prevent the sliding nozzle from moving to the desired position at key-on.

The aftertreatment system **must** be inspected after making the appropriate repair outlined in this fault code troubleshooting tree. Progressive damage to the aftertreatment system may have occurred. Perform the aftertreatment initial check procedure to test for a damaged diesel particulate filter.

- For ISB engines, see the following procedure in the ISB CM2150 Service Manual, Bulletin 4021578. Refer to Procedure 014-013 in Section 14.
- For ISC and ISL engines, see the following procedure in the ISC and ISL CM2150 Service Manual, Bulletin 4021569. Refer to Procedure 014-013 in Section 14.

Refer to Troubleshooting Fault Code t05-2449