Technical Service Bulletin

Technical Service Bulletin: TSB110181	**Released Date**: 24-May-2019
Engine Speed Instability Related to Truck Vacuum Blower or Pump Engagement	

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Core Issue

Some units, with transfer cases, have exhibited engine speed instability when the vacuum blower or pump is engaged. This instability typically causes the operator to shut down the system. Some units **only** exhibit this instability when the transmission is in an overdrive gear. New engine control module (ECM) software added a feature called Transmission Driven Power Take-Off (PTO). This new ECM software/feature can address most of these issues.

Confirmation

Product Affected:

- ISL9 CM2350 L101
- ISX15 CM2250
- ISX15 CM2250 SN
- ISX15 CM2350 X101
- ISX12 CM2350 X102
- ISX12/ISX11.9 CM2250
- X12 CM2350 X119B

In order to properly test for instability; the unit **must** be operated with the transmission in an upper gear, the transfer case engaged, and a load placed on the engine.

1. If the unit displays vehicle speed on the dash during operation, most likely the Transmission Driven PTO feature is **not** properly set up.
2. The truck body builder may have disabled the vehicle speed sensor (VSS) signal to the ECM.

3. The truck original equipment manufacturer (OEM) may have installed an additional PTO switch that may be labeled “PTO Control”. This switch will disable the VSS signal to the ECM.
4. Check that the ECM has the latest available calibration. Engines built prior to April 2011 were shipped with older calibrations.
5. Check for fault codes, including intermittent ones.
6. If the vehicle has a Parking Brake Switch input that is either wired directly to the ECM or is multiplexed within, INSITE™ electronic service tool Parking Brake Switch **must** be ENABLED.

Note : If the vehicle does not have a parking brake switch input, then the OEM or body builder must install the governor type switch to indicate to the ECM when the transfer case is engaged.

Resolution

1. Proper settings for Transmission Driven PTO:
   - PTO - Alternate Operation - Enable (Recommended for fire trucks and vacuum trucks **only**)
   - PTO - Ignore Vehicle Speed Source in PTO - Disable
   - PTO - Transmission Driven PTO - Enable
   - PTO - Transmission Driven PTO - Transmission Driven PTO Type - Transmission Driven - Irregular Load.
2. Proper settings for PTO:
   - PTO - Maximum Engine Load - Backward calculate, using the manufacturer’s torque rating for the PTO device and the gear ratio between the device and the engine. Maximum Engine Load = Rated Torque/Gear Ratio.
3. Restore the VSS signal back to original factory condition. Ensure the VSS circuit is **not** interrupted. The ECM **must** read vehicle speed for the feature to work.
4. Update the ECM calibration if **not** already up-to-date.
5. Repair all fault codes.

If none of the above resolves the issue, contact your authorized Cummins® repair location. For authorized Cummins® repair locations, follow your technical support escalation process.

Warranty Statement

The information in this document has no effect on present warranty coverage or repair practices, nor does it authorize TRP or Campaign actions.

Document History

Date	Details
2011-6-14	Module Created
2011-12-21	Updated Information.
2012-2-27	Updated Information.
2014-9-29	Additional engines added.
2015-4-22	Additional engines added.
2016-3-14	Added statement about transfer cases, note about parking brake switch input, and recommendation for fire trucks and vacuum trucks only. Changed reference about placing a load on the engine vacuum system to placing a load on just the engine.
2019-5-24	Added X12 CM2350 X119B

Last Modified: 24-May-2019