



Volvo Models

Volvo Model VNR , VNX , VNL , VNM , VHD , VAH

Engine family

Engine family 11L Engine , 13L Engine

Emission Standard

Emission Standard 2018 , OBD2017 , US17 GHG

** SOLUTION **

Title Volvo Chassis - Automated Manual Transmission Model F (AMT-F, I-Shift) Power Take-off (PTO) Does Not Engage Or Grinds Intermittently During Engagement Or During Operation; Symptoms Present For PTO That Was Previously Working Properly - **US17+OBD16 And Newer Emissions, Common Model Years 2018 And Newer**

Cause A gearbox-mounted PTO on an AMT-F may initially engage properly, but almost immediately begin to grind. The issue covered in this Solution will appear in a vehicle that has a PTO that has been installed and in use for a significant period of time.

Gearbox-mounted PTOs for the AMT-F are controlled by the Vehicle Electronic Control Unit (VECU) and/or the Body Builder Module (BBM). The VECU and BBM are not able to diagnose electrical shorts or open circuits of these components. If a PTO-related circuit is broken after the PTO is initially engaged, the solenoid will disengage the air from the PTO and then re-engage when the circuit is reconnected. The disengagement and re-engagement of the PTO mid-operation will cause it to grind.

Solution

IMPORTANT: Vehicles potentially affected by the issue described in this Solution will have a gearbox-mounted PTO that has been installed and **in use for a significant amount of time**. Older AMT-F equipped chassis that are **upgraded to have a PTO** mounted on the gearbox in the aftermarket may encounter grinding from the PTO when it is engaged. In this case, grinding will likely be observed **from the time of installation**.

For applicable vehicles that exhibit the conditions described in the note above ONLY:

1. Run Accessory Kit 85151972.
2. Program the VECU.
3. Verify that the issue is corrected.

I. Symptoms commonly encountered during PTO operation with this issue:

- Intermittently will not engage

- Grinds on engagement intermittently
- Drops out during operation
- Grinds during operation intermittently

II. If any of the above symptoms are encountered, the items below should be checked:

A. The wiring harness and connector at the PTO Solenoid.

1. Broken, rubbed, or frayed wires.
 - Special attention should be paid where the wires enter the connector seal.
2. Pins backed out of the connector/ Poor pin tension.
3. Corrosion of the pins or wiring at the connector.

B. The complete circuit from the PTO solenoid to the VECU.

1. A thorough shake test should be performed.
2. Wire should be verified as able to carry a load if continuity is confirmed, resistance is verified to be within spec and a wiggle test of the harness does not reveal a break.

III. Select the appropriate repair based on findings:

A. If a broken wire is found at the connector:

1. Verify that the PTO bracket currently installed is Part Number 23220187.
 - a. If the bracket is not the updated part:
 - Update the bracket and replace the wiring harness
 - b. If the bracket is current:
 - Repair or replace the connector or harness as necessary.

B. If an issue is found in the wiring harness that is affecting the rest of the circuit:

1. Repair or replace components as required.

IV. Inspect the PTO following repairs

A. The PTO should be removed and checked after the root cause is found and repaired to confirm that there is no excessive damage that requires component replacement.

NA_Sister solutions

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Solution visibility

Dealer distribution

Function(s)/component(s) affected

Function affected

automatic transmission , engagement , PTO , MID 144 – VECU

Function Group

Function Group 301 software documents, complete vehicle , 3711 Cable Harness, Complete , 481 power-take off (gearbox) , 483 control power take-off

Customer effect

Main customer effect noise , efficiency/abnormal behavior , stop/start

Noise grinding

Conditions

Vehicle operating mode when activating , when stationary , engagement , with a PTO

Frequency of occurrence of
problem random

Location of problem underneath cab

Administration

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