

SS 1034166 New Cascadia With Cummins Engine and Eaton UltraShift PTO Engagement

Applicable Vehicles:

This solution applies to New Cascadia (P4) vehicles with a Cummins engine, an Eaton UltraShift transmission and factory installed Power Take Off (PTO) wiring.

Issue:

We received a question pertaining to why the PTO is grinding when being engaged. The functionality of the PTO was fine, this was only an engagement question.

Solution:

Currently on New Cascadia (P4) vehicles with the Cummins engine and the Eaton UltraShift Transmission, in order to engage the PTO, the transmission gears should not be turning, otherwise a grinding noise will be heard during PTO engagement. Attached is documentation supplied by Eaton addressing proper PTO engagement for each mode of operation, Stationary, Mobile and Split Shaft. I have also included the same information from the attachment in the text below. These procedures should be used when engaging any of the modes of PTO operation.

UltraShift® PLUS and FA Countershaft and Split Shaft PTO Operation

Stationary PTO Operation

The transmission countershaft PTO is used in this application.

To engage the PTO for stationary operation perform the following steps:

1. Apply the parking brake.
2. Depress the service brake.
3. Select "D" on the Shift Control (this stops countershaft rotation for PTO engagement).
4. Engage the PTO.
5. Select "N" on the Shift Control.
6. Release the service brake to engage the clutch and power the PTO.
7. Engine speed must be raised to engage the Split Shaft PTO.

Mobile PTO Operation

The Transmission countershaft PTO is used in this application and provides limited mobile operation in the start gears.

To engage the PTO for mobile operation perform the following steps:

1. Depress the service brake.
2. Release the parking brake.
3. Select "D" on the Shift Control (this stops countershaft rotation for PTO engagement).
4. Engage the PTO.

5. Select "D", "MANUAL", "Neutral" or, "Reverse", as required for vehicle movement.
6. Release the service brake to engage the clutch and power the PTO.
7. Raise the engine speed as required to move vehicle / operate PTO.

Split Shaft PTO Operation

The drive line, split shaft, or transfer case PTO is used in this application and provides stationary operation only.

1. With Vehicle stopped, set the park brake and select Neutral.
2. Press the service brake (to disengage the clutch)
3. Turn on the split shaft PTO switch. The associated switch lamp should be on.
4. It is critical that the split shaft PTO is truly engage to prevent vehicle movement. Ensure the split shaft PTO lamp is lit.
5. Select Manual Mode and button up or down as desired (the default gear ratio is 1:1). The gear display will flash the split shaft PTO gear.
6. Release the service brake, then press the throttle pedal down to launch the split shaft PTO until the gear display stops flashing (this indicates the clutch is closed)
7. The operator can then use cruise control, the throttle pedal, or remote throttle to reach the desired split shaft PTO speed.
8. The operator can stop the split shaft PTO process normally by either turning off the split shaft PTO switch, moving the PRNDL out of Manual Mode, releasing the parking brake, or pressing the Service Brake. The TECU then exits split shaft process normally by ramping engine down to its idle speed, opening the clutch and shifting to Auto Neutral.