



TECH TIP

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TT-26-004 Air Actuated Cooling Fan Diagnostics and Inspection Procedures

OVERVIEW

Recent supplier review of warranty returned air actuated fan clutches indicate no trouble found. To reduce misdiagnosis and unnecessary replacement of the fan clutch, this tech tip provides examples of normal fan characteristics along with diagnostic and inspection procedures.

SUBJECT VEHICLES

2022 through 2027 model year Hino L-Series vehicles and 2023 through 2027 model year Hino XL-Series vehicles that were assembled at the Mineral Wells, West Virginia, USA assembly plant or Woodstock, Ontario Canada assembly plant.

WARRANTY TERMS

This TechTip is for information only, it does not imply any warranty

SYSTEM OPERATION

The engine control unit (ECU) controls the fan clutch solenoid which releases and applies air to engage and disengage the fan clutch based on ignition key position and various sensor inputs such as engine coolant temperature and A/C system pressure.

Fan Clutch Operation				
ECU Supplied Power to Solenoid	Fan Clutch Solenoid	Fan Clutch	Fan Blade	
			Engine Off	Engine Running
No	Off	Engaged	Does Not Spin	Spins at Engine RPM
Yes	On	Disengaged	Fan Spins Freely	

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INSPECTION

Key on engine off (KOEO) to disengage the fan clutch.

- Confirm the following:
 - No air leaks are present.
 - Fan rotates smoothly.
 - Backing plates are securely attached.
 - 0.050" or less of play on the outer diameter of the clutch housing measured with a dial indicator.

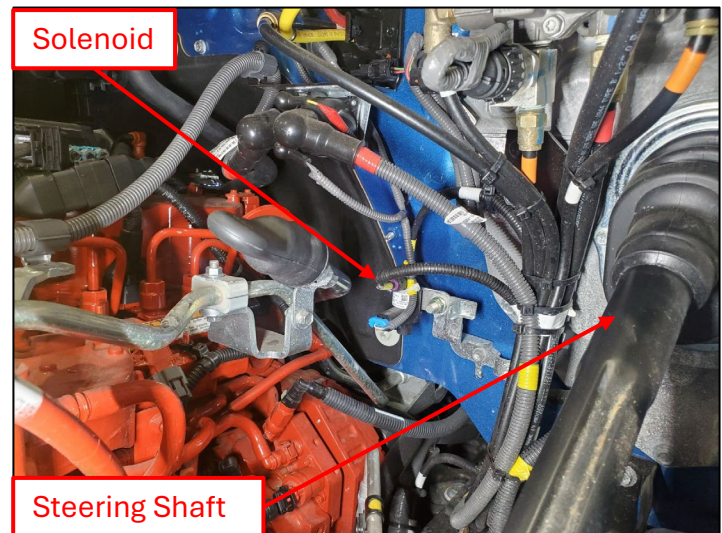
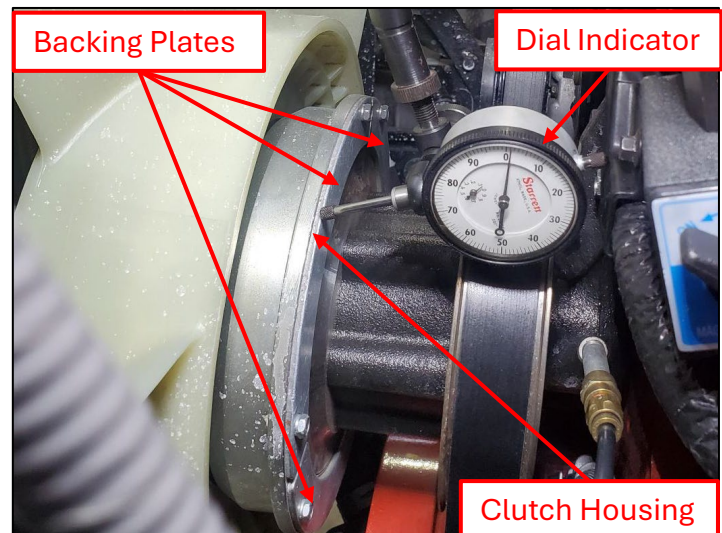
NOTICE: When disengaged it is normal for the fan to feel loose or wobble.

Key off to engage the fan clutch.

- Confirm the following:
 - Solenoid exhausts air pressure.
 - Fan does not rotate.
- Remove the drive belt to confirm the drive pulley rotates smoothly.

Before replacing the fan clutch confirm the following:

- Air is supplied to the solenoid.
- Power and ground is present at the solenoid with the KOEO.
- Minimum of 90 psi is present at the fan clutch with the KOEO.
- The solenoid exhausts the air pressure with the key off.
- The ECU is configured correctly. Refer to Tech Tip 25-008



NOTICE: If the vehicle has not been operated for extended periods of time corrosion may accumulate inside the clutch housing causing the fan clutch to stick or drag resulting in noise. Restoring regular vehicle operation will correct this condition.

NOTICE: For additional technical data regarding the fan clutch, search K-Series Fan Drive on the BorgWarner website.