

Important: Use factory service manuals and procedures and refer to all applicable safety precautions when servicing vehicles.

Quick Reference

Vibration Diagnostics

This document is intended to assist with drivetrain vibration diagnosis. It does not guarantee an immediate solution nor does it guarantee warranty responsibility or reimbursement. Refer to Roadranger.com for Product Warranty Statements, Warranty Manual, and Warranty Guidelines.

Start

1

Gather Info

When did vibration start?
Where is vibration felt?
What road conditions?
Under load or high torque conditions?
During acceleration/deceleration?
Speed dependent?
RPM dependent?
Noise?
Suspension modified recently?
Lube clean and at proper level?

2

Road Test

Have vehicle driver recreate complaint condition, if possible
Leave trailer attached
Run up to suspected RPM and put transmission in neutral

3

Simulate Conditions

Speed
RPM
Gear Position
Coast
Under power
Loaded / Unloaded

4

Record Findings

Speed
RPM
Gear position
Coast
Under power
Loaded / Unloaded

5

Stationary Inspection

Tires
Rims
Dented driveshaft tubing
Engine supports
Transmission supports
Driveshaft center bearing

6

Vibrations While Stationary?

No

Yes

Previous work on clutch or engine?

No

Yes

If clutch work recently done, problem could be related to the clutch. Verify proper clutch was installed.

If engine work recently done, problem could be related to the engine. Contact your engine distributor.

In the road test in Step 2, the vehicle was run up to the suspected RPM and the transmission shift lever was placed in neutral.

Did the vibration occur during this test?

No

Problem is related to the clutch.

Remove clutch and check for: Broken springs, disc, or other damage.

Contact your engine distributor.

Speed Related?

No

Yes

Does ride height meet OEM specs?

No

Correct per OEM procedures.

Perform visual inspection and use Eaton Driveline Angle Analyzer (DAA).

Look for loose:

- ✓ U-joint bearing cups and trunnions
- ✓ Bearing straps
- ✓ Flange yoke / companion flange
- ✓ Yoke-mounted damper
- ✓ Parking brake
- ✓ Center bearing
- ✓ Fasteners
- ✓ Driveshaft for damage / missing weights
- ✓ Driveshaft slip spline (wear / bottoming / inadequate engagement)
- ✓ Cab mounts / air ride system

Problem Solved?

Yes

Done

No

Remove all drive axle shafts and lock in power divider.

Run truck in same condition as when complaint occurred.

Problem Solved?

Yes

Problem is related to the wheel end. Take known good wheel assembly and test replacement from wheel to wheel to isolate problem.

No

Isolate Suspect Shaft

Starting with rear-most vehicle driveshaft, remove each section and re-run test to isolate suspect shaft.

Check:
✓ Driveshaft runout
✓ Re-index driveshaft - Separate shaft at end yoke, rotate 180°, and reassemble.

Was suspect shaft isolated?

No

If problem persists, contact Roadranger Support Team: 1-800-826-4357

Contact driveline manufacturer.

Problem Occur with Trailer Loaded?

No

1-800-826-4357

Yes

Does ride height meet OEM specs?

No

Correct per OEM procedures.

Perform visual inspection and use Eaton Driveline Angle Analyzer (DAA).

Look for loose:

- ✓ Torque arms
- ✓ Driveshaft slip spline (wear / bottoming / inadequate engagement)
- ✓ U-joint
- ✓ Bearing straps
- ✓ Flange yoke / companion flange
- ✓ Center bearing
- ✓ Fasteners
- ✓ Cab mounts / air ride system

Problem Solved?

Yes

Done

No

Remove inter-axle shaft and lock power divider.

Run truck in same condition as when complaint occurred.

Problem Solved?

Yes

Problem is related to the inter-axle shaft.

Contact Roadranger Support Team: 1-800-826-4357.

No

Check for other possible causes

Check:
✓ Clutch
✓ Center bearing
✓ Transmission rear supports
✓ Engine mounts

Problem Solved?

Yes

Done

No

If problem persists, contact Roadranger Support Team: 1-800-826-4357