

DIAGNOSIS AND TESTING - PROPELLER SHAFT

PROPELLER SHAFT VIBRATION

Out-of-round tires or wheels that are out of balance, will cause a low frequency vibration.

Driveline vibration can also be caused by loose or damaged engine mounts.

Propeller shaft vibration increases with vehicle speed. A vibration that occurs at a specific speed range, is not usually caused by an out of balance propeller shaft. Defective universal joints or an incorrect propeller shaft angle are usually the cause of such a vibration.

DRIVELINE VIBRATION

CONDITION	POSSIBLE CAUSE	CORRECTION
Propeller Shaft Noise	1) Undercoating or other foreign material on shaft.	1) Clean exterior of shaft and wash with solvent.
	2) Loose companion flange bolts.	2) Install new bolts and tighten to proper torque.
	3) Loose or bent U-joint yoke or excessive runout.	3) Install new yoke.
	4) Incorrect driveline angularity.	4) Measure and correct driveline angles.
	5) Rear spring center bolt not in seat.	5) Loosen spring U-bolts and seat center bolt.
	6) Worn U-joint bearings.	6) Install new U-joint.
	7) Propeller shaft damaged or out of balance.	7) Install new propeller shaft.
	8) Broken rear spring.	8) Install new rear spring.
	9) Excessive runout or unbalanced condition.	9) Re-index propeller shaft, test, and evaluate.
	10) Excessive drive pinion gear shaft runout.	10) Re-index propeller shaft and evaluate.
	11) Excessive axle yoke deflection.	11) Inspect and replace yoke if necessary.
	12) Excessive transfer case runout.	12) Inspect and repair as necessary.
Universal Joint Noise	1) Loose companion flange bolts.	1) Install new bolts and tighten to proper torque.
	2) Lack of lubrication.	2) Replace U-joints as necessary.

PROPELLER SHAFT BALANCE

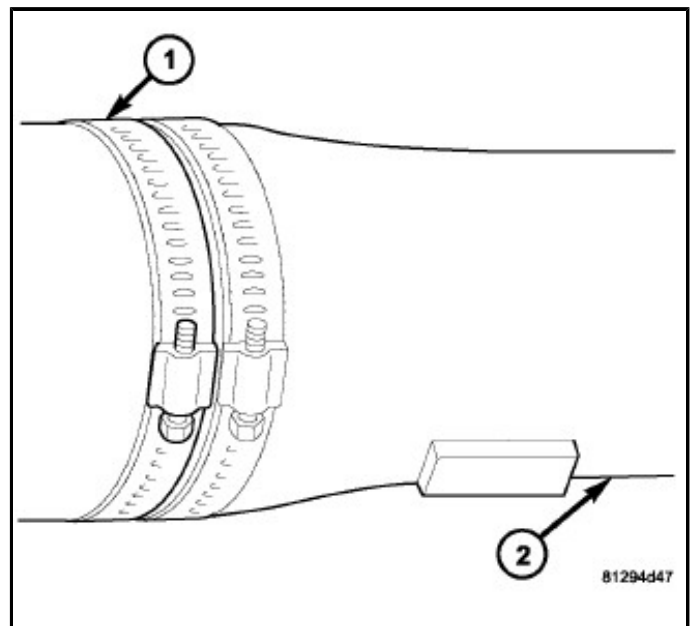
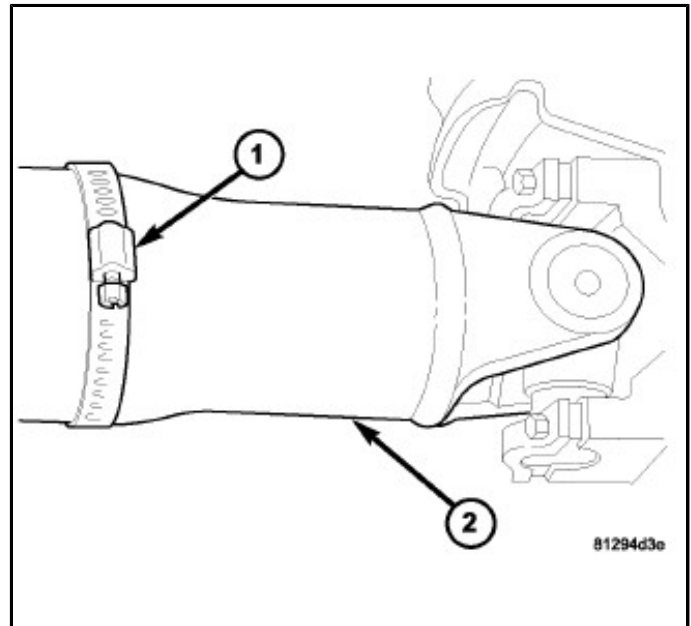
If propeller shaft is suspected of being out of balance, use the following procedure.

NOTE: Indexing propeller shaft 180 degrees relative to the yoke may eliminate some vibrations.

1. Raise and support vehicle.
2. Clean all foreign material from the propeller shaft and universal joints.
3. Inspect propeller shaft for missing balance weights, broken welds and bent areas. **If propeller shaft is bent, it must be replaced.**
4. Inspect universal joints for wear and properly installed.
5. Check propeller shaft bolt torques.
6. Remove wheels and install lug nuts to retain brake rotors.
7. Mark and number the shaft six inches from the pinion yoke end at four positions 90 degrees apart.
8. Run and accelerate vehicle until vibration occurs. Note the intensity and speed the vibration occurred. Stop the engine.
9. Install a screw clamp at position (1).
10. Start engine and check vibration. If there is little or no change move the clamp to the next positions. Repeat the vibration test.

NOTE: If there is no difference in vibration at this positions, the vibration may not be the propeller shaft.

11. If vibration decreased, install a second clamp (1) and repeat the test.



12. If additional clamp causes an additional vibration, separate the clamps 1/2 inch (1) above and below the mark. Repeat the vibration test .
13. Increase distance between the clamp screws (1) (2) and repeat test, until the least amount of vibration is noticed. Bend the slack end of the clamps so screws will not loosen.
14. If vibration remains unacceptable, repeat the procedure to the front end of the propeller shaft.
15. Install wheels and lower vehicle.

