

ROAD TEST (Continued)

Road Test Quick Checks

1. **24-80 km/h (15-50 mph):** With light acceleration, a moaning noise is heard and possibly a vibration is felt in the floorpan. It is usually worse at a particular engine speed and at a particular throttle setting during acceleration at that speed. It may also produce a moaning sound, depending on what component is causing it.
Refer to Tip-In Moan Diagnosis charts.
2. **High Speed:** With slow acceleration and deceleration, a shake is sometimes noticed in the steering wheel/column, seats, floorpan, trim panels or front end sheet metal. It is a low frequency vibration (around 9-15 cycles per second). It may or may not be increased by applying brakes lightly.
Refer to High Speed Shake Diagnosis charts.
3. **High Speed:** A vibration is felt in the floorpan or seats with no visible shake, but with an accompanying sound or rumble, buzz, hum, drone or booming noise. Coast with clutch depressed or automatic transaxle selector in NEUTRAL and engine idling. If vibration is still evident, it may be related to wheels, tires, brake rotors, hubs or bearings.
Refer to High Speed Shake Diagnosis charts.
4. **O-High Speed:** A vibration is felt whenever the engine reaches a particular rpm. It will disappear in neutral coast. The vibration can be duplicated by operating the engine at the problem rpm while the vehicle is sitting still. It can be caused by any component, from the accessory drive belts to the clutch or torque converter which turns at engine speed when the vehicle is stopped.
Refer to Engine Accessory Diagnosis charts.
5. **Noise and Vibration while Turning.** Clicking, popping or grinding noises may be due to the following:
 - a. Cut or damaged CV joint boot resulting in inadequate or contaminated lube fill in outboard or inboard CV joints
 - b. Loose CV joint boot clamp
 - c. Other component contacting halfshaft assembly
 - d. Worn, damaged or improperly installed wheel bearing
 - e. Worn, contaminated, or dry, inboard or outboard CV joints.

CV Joint Noise and Vibration

During normal driving conditions the CV joints are subjected to constant changes in angularity. Worn or damaged CV joints can be isolated during the road test by noting changes in steering angle or ride height and the effect that it has on the vibration or shudder condition.

NOTE: If a shudder condition is on a new vehicle, check front spring rates and vehicle ride height. Incorrect front springs will cause incorrect ride height and shudder on acceleration.

If the condition becomes noticeably worse during turns the outer CV joint is suspect. However, if the condition only changes with ride heights the inner CV joint is the probable source.

Once you have determined that a CV joint is damaged, refer to Group 05 for complete service instructions.

Exhaust System Noises

To neutralize exhaust system noise, use the following procedure:

1. Loosen exhaust pipe to manifold fasteners at flanges and at muffler inlet connection.
2. Place a stand to support muffler parallel to vehicle frame with muffler hanger unloaded.
3. Tighten muffler connection.
4. Position exhaust pipes to manifolds and tighten. Ensure catalyst and heat shield do not contact frame rails.
5. With complete exhaust system tight (and cooled), the rear hanger strap should be angled forward, to allow the system to expand rearward when heated during normal running.

DIAGNOSIS AND TESTING

Tools Required:

- Rotunda Radial Run-Out Gauge 007-00014
- Belt Tension Gauge T63L-8620-A
- Dial Indicator with Bracketry TOOL-4201-C

These diagnosis charts are designed to take the technician through a step-by-step diagnosis procedure to determine the cause of a condition. It may not always be necessary to follow the chart to its conclusion. Perform only the Steps necessary to correct the condition. Then check the operation of the system to ensure the cause has been found.

It is sometimes necessary to remove various components of vehicle to gain access to component to be tested. Refer to applicable section for removal and installation of components. After verifying the condition has been corrected, ensure all components removed have been installed.