

## DIAGNOSTIC THEORY (Continued)

### Know the Probability of Certain Conditions Developing

It is true that most conditions are caused by simple things rather than by complex ones and they occur in a fairly predictable pattern. Electrical conditions, for instance, usually occur at connections rather than in components. An engine no-start is more likely to be caused by a loose wire or some component out of adjustment than a sheared-off camshaft. Know the difference between **impossible** and **improbable**. Many good technicians have spent hours diagnosing a system thinking certain failures were impossible, only to find out that the failures were just improbable and actually happened. Remember that new parts are just that. It does **not** mean they are **always good** functioning parts.

### Don't Cure the Symptom and Leave the Cause

Lowering the air pressure in a front tire may correct the condition of a vehicle leaning to one side, but it does not correct the original condition.

### Be Positive the Cause Is Found

Double check findings. If a worn component is found or something is out of adjustment, determine what else could be wrong. If one of the engine mounts was loose, could the other one be loose too? What about the transaxle mounts?

### Diagnosis Charts

Charts are simply a way of expressing the relationship between basic logic and a physical system of components. They help corner the cause of a condition in the **shortest possible amount of time**. Diagnosis charts combine many areas of diagnosis into one visual display:

- **Probability** of certain things occurring in a system.
- **Speed** of checking certain components or functions before others.
- **Simplicity** of performing certain tests before others.
- **Elimination** of checking huge portions of a system by performing simple tests.
- **Certainty** of narrowing down the search to a small portion before performing in-depth testing.

The fastest way to find a condition is to work with the tools that are available, which means working with proven diagnosis charts and the proper special equipment for the system.

## HOW TO USE THIS DIAGNOSTIC PROCEDURE SECTION

Noise, vibration and harshness (NVH in engineering shorthand) is becoming more and more important because vehicles are becoming more sensitive to these vibrations. This section is designed to give a working knowledge of the process of diagnosing noise and vibration situations. It is divided into several sections based on the description of the condition. If the condition occurs at high speed for instance, the most likely place to start is under High Speed Shake. The Road Test Section will tell how to sort out the conditions into categories and how to tell a vibration from a shake. It will give a few hints on quick checks to ensure that a cause is either pinpointed or eliminated.

Become familiar with the terms. Use the Glossary Section to find the descriptive name of conditions not encountered before. After naming it, proceed to the Section entitled Identifying the Condition and locate the proper Diagnosis Section. Remember, just by beginning at that point, most other systems in the vehicle have been eliminated. When the proper section is identified, the job is partly done. Follow the steps within the section. Quick Checks are described within the step, while more involved tests and adjustments are found in Service and Adjustment. Always follow each step exactly, and make notes along the way to recall important findings later.

## GLOSSARY

### Acceleration

1. **Light:** Part throttle increase in speed such as 0-97 km/h (0-60 mph) in approximately 30 seconds.
2. **Heavy:** One-half to full throttle increase in speed such as 0-97 km/h (0-60 mph) in approximately 20 seconds.

### Ambient Temperature

Surrounding or prevailing temperature. Normally, the temperature in the service area or outdoors, depending on where testing is taking place.

### Boom

A cycling, rhythmic noise often accompanied by a sensation of pressure on the ear drums.

### Bound Up

Refers to a stressed, rubber-mounted component that transmits any NVH which would normally be absorbed by the mount. Refer to Neutralize.

### Brakes Applied

When vehicle is stationary, service brakes applied with enough force to hold vehicle against acceleration with transaxle in gear.

### Coast/Neutral Coast

Engine/transaxle taken out of gear by placing transmission selector in NEUTRAL or by depressing clutch in manual transaxle.