

## Diagnosing Transmission Shudders and Chatters

Diagnosing a shudder can often be quite difficult. What feels exactly like a transmission shudder can be an engine problem. An engine miss can seem like a transmission problem. Although an exact diagnostic procedure for shudders is difficult if not impossible to achieve, there are a few tricks that can help pinpoint the real cause of the concern. First of all, realize that a true transmission shudder will usually occur during a shift or TCC engagement while an engine problem will usually occur with the transmission holding steady in a particular gear but happens when an increased load is placed on the engine like a slight incline. It's important to remember that as the transmission upshifts the engine load also increases immediately after the shift. This is why some engine problems will seem just like a transmission problem.

Typically, I will use several methods to pinpoint the root cause of the problem. The key behind the diagnosis is to make changes, one at a time, in the engine and transmission operations and see if those changes affect the shudder in any way. Try changing transmission pressure by adjusting the TV, modulator or EPC solenoid. If the shudder changes, think transmission problem. Add a friction modifier like Lubegard's Highly Friction Modified fluid supplement or Instant Shudder Fix. Drive the vehicle around long enough for this to mix with the ATF and work into the friction material. Did the shudder change or even go away? If it changed, once again, think transmission. Monitor the oxygen sensor with a scan tool.

Often, an engine problem will show up as an abnormally lean reading during the shudder. While the scan tool is hooked up, obviously check for diagnostic trouble codes. Engine codes relating to secondary ignition, fuel injection, or EGR are certainly a clue to engine performance problems. Transmission shudders often don't give you much in the way of trouble codes but check anyway. A gear ratio error code, particularly if it relates to the same gear that you feel the shudder in, is pretty concrete evidence. Question the customer about changes in vehicle performance or gas mileage. When did they last have a tune-up or transmission service?

The two main diagnostic ideas here are:

- 1) Check all available data and
- 2) Make logical changes, one at a time, and see what affect they have.

Remember, diagnosis is simply a process of elimination in a systematic and logical order.