ELUSIVE DRIVELINE AND BRAKE RELATED SYMPTOMS

When They Fail, They Share Similar Characteristics

Often, driveline or suspension related problems are misdiagnosed as brake related conditions. The symptoms share many common characteristics that make it easy for the technician to miss the diagnosis, resulting in major expense to the customer and often lost labor hours for the shop. Many experienced technicians have been fooled by the symptoms.

Often, these complaints surface with the second ownership of the vehicle. The original owner may have tolerated the condition, and after futile attempts to get the problem resolved, finally out of frustration just accepted the condition as a normal characteristic. Many times the symptoms are eliminated in the short term, only to re-appear later.

The first course of action for the technician should be to familiarize himself with the symptoms. The best way to do this is to take a road test with the vehicle owner to get a clear understanding of the customer's complaint. Performing repairs based on the customer's diagnosis can be a costly exercise, accompanied with a lot of negative publicity, especially when the symptoms prevail.

Let's consider some vehicles and conditions that have been documented as elusive symptoms to diagnose:

CHEVROLET TRUCK DRIVELINE BUMP

The customer had just purchased the low mileage 2009 Silverado from the original owner. Within a few weeks he observed a condition that appeared to be a brake related problem. When the brakes were applied and the vehicle would come to a stop, or sometimes during the initial acceleration following a stop, it would feel as if the truck had been bumped in the rear. Certain that a brake related condition was causing the brakes to remain in the applied position, he took the vehicle to a repair shop for a complete brake inspection. When the technician failed to find a problem with the brakes and the symptom persisted, a call was made to the previous owner, who acknowledged that he had encountered that same symptom in the past, but the dealer had made the repairs under warranty. The service record in the glove box reflected that the dealer had addressed the same symptom and apparently resolved the condition, at least temporarily. It would be determined that an additional step would be required to eliminate the condition and prevent it from recurring.

A Factory Solution

GM has acknowledged that some customers may feel a bump or hear a clunking noise during a stop or launch, as the vehicle is accelerated. Some have described the symptom as feeling like they have been bumped in the rear by another vehicle. This condition is caused by a slip/stick condition between the driveshaft slip yoke and the transmission output shaft splines. When the brakes are applied and the vehicle comes to a complete stop, the driveshaft slip yoke moves forward into the transmission, then rebounds backward, creating the bumping sensation. According to GM, the following vehicles equipped with the 4L60 automatic transmissions and 2WD are affected:

- 2007–2008 Chevrolet Avalanche, Suburban
- 2007–2009 Chevrolet Tahoe
- 2007–2010 Silverado (new body style) w/ single-piece driveshaft
- 2007–2008 GMC Yukon XL
- 2007–2009 GMC Yukon
- 2007–2010 GMC Sierra (new body style) w/ single-piece driveshaft

Correction

If the vehicle is under warranty, the repair may involve a 2-step procedure to eliminate the symptom:

First Step… the first step involves removing the driveshaft and cleaning the splines on the slip yoke that attaches to the transmission output shaft. Once completed, the splines should be lubricated with GM P/N 19257121 (Canada P/N 19257122) lubricant using

a brush or equivalent to insure the grease completely covers the entire spline area. Once completed, the driveshaft should be installed and a road test performed to verify the symptom has been resolved.

Second Step… if the condition recurs, the second step involves replacing the slip yoke with a revised nickel-plated slip yoke available from GM. The cases that we have been involved with required the revised yoke to permanently correct the symptom, as the grease only provided a short term solution. For vehicles under factory warranty, GM will not replace the slip-yoke with the revised assembly until the first step has been performed and failed to correct the condition.

FORD F150 BUMP ON ACCELERATION/ BRAKING

Ford acknowledges that some 2009–2010 F150 trucks equipped with a two-piece driveshaft and built prior to 12/1/2009 may encounter customer complaints of a bumping or slipping sensation when accelerating from a stop following a light brake application. The symptom is that of a brake system sticking and then releasing.

Solution

The symptom is due to a slip/stick condition occurring with the driveshaft slip yoke. The repair involves a thorough clean-up of the driveshaft slip yoke splines with preferably a clean towel and no solvent. Removal of the rear portion of the driveshaft is all that is necessary. With a marking crayon, make certain that you clearly mark the rear driveshaft flange and pinion flange, the driveshaft center yoke barrel and the boot to insure that the components get re-installed in the same position. Failure to install the components in the proper position may introduce a vibration into the driveline.

Ford recommends applying half of a 3 ounce tube of Motorcraft PTFE lubricant (P/N XG-8) to the internal splines of the yoke and then re-assembling the components.

Factory service bulletins reflect the same slip/stick conditions affecting Ford applications back to 1997. The solution for those applications requires the same slip yoke lubrication to insure the slip yoke slides smoothly on the output shaft splines.

GM DRIVELINE CLUNK

The conditions that were just described are not to be confused with normal driveline clunk or noise. GM has cautioned its dealers that no attempt should be made to correct driveline clunk or noise under certain conditions that would be considered a normal characteristic. For example, some customers may complain that their vehicle makes a clunking noise or gives the sensation of too much play/looseness when shifting from Park to Drive or Reverse or from a combination of one of those gear selections. Further, they may complain of a clunking noise when the accelerator is quickly depressed and then released, or when cresting a hill where the drivetrain is momentarily unloaded and then loaded during acceleration. A clunking noise during these conditions should be viewed as a normal characteristic.

Be advised that when multiple gears are interacting, a certain clearance is required between those gears in order for them to operate properly. Technicians familiar with this condition refer to it as gear lash. The mentioned clearance can result in a customer complaint of a clunking noise when the gears are loaded and then unloaded rapidly, or when the direction of the gear rotation is reversed. The amount of the free-play is in relation to the number of gears in the system. Naturally, a four-wheel drive vehicle will have more gear lash when compared to a two-wheel drive vehicle, as it contains additional gears and universal joints.

Driveline clunk is almost never the result of one individual component, but instead a combination of the clearance or lash associated with many components, referred to as stacked tolerances. Therefore replacing a single component will not satisfy the customer's complaint. GM states that while some customers may find the clunk sensation objectionable, it does not affect the durability or performance of the system.

Summary: A lot of needless brake services have been performed in a futile effort to eliminate the symptoms described in this article. Make certain you get a full description of the symptoms from the customer and rule out the mentioned possibilities, prior to performing any repairs to the braking system.

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