

SOLVING ELUSIVE PROBLEMS

When Fixing One Problem Creates Another

While the automotive service business can be a rewarding venture, it can also be a challenging experience. Sometimes, the harder we work to achieve a level of expertise in our field, the more difficult the process can be. Imagine performing an inspection on a customer's vehicle and identifying a needed service. The customer is receptive to the recommendation and you perform the service. In the process of making the repair, you introduce another problem into the vehicle. While this can be embarrassing, it can also quickly consume any profits that the shop would make on the initial repair. The customer usually becomes frustrated, especially if they have to leave the vehicle, or bring it back multiple times. And then there are those symptoms and conditions that can elude the technician, resulting in the replacement of some unnecessary parts. Often this occurs when we get too anxious to make the repair, rather than taking a methodical approach to the diagnosis. Sometimes we invest countless hours of diagnostic time in a futile effort, and later determine that a service bulletin and factory fix was the only solution. Let's consider some cases whereby a problem was introduced while making another repair, and some difficult to diagnose problems.

SOLVING BRAKE NOISE INTRODUCES PEDAL PULSATION

The disc pads were worn down to the wear indicators and a loud squealing sound was being emitted from the braking system. The technician performed a brake inspection and determined the need for a complete brake system overhaul. Authorization was given for the repairs and the work was performed, including machining of the rotors with an on-car lathe.

The next morning, the customer returned with a brake pulsation complaint. The rotors were checked for runout and parallelism and were determined to be within spec. A second road test revealed the same pulsating sensation. A new set of rotors was installed, with the same pulsating results. How could this be possible?

Cause and Solution: While performing the brake service, the technician introduced the pulsating sensation when

he machined the rotors. The rotors had been properly machined and were running true, but he had not protected or cleaned the wheel speed sensors during and after the machining process. Metallic particles from the machining had contaminated the wheel speed sensor's magnetic material. This resulted in a false ABS activation. If the ABS indicator lamp had not been defective, the illuminated lamp could have made the diagnosis much easier. Once the wheel speed sensors were cleaned and the ABS code cleared, the system returned to normal braking. And don't be fooled by an ABS system self check. During this mode, a pulsation or clunking noise should be considered normal.

FALSE ABS CODE AND ILLUMINATED LAMP

The Infiniti, equipped with an ABS system, was suspended on a lift, awaiting a complete lube service and safety check. The young service tech performing the maintenance had left the ignition switch in the "on" position, so that he could enjoy the vehicle's sound system.

A colleague stopped to ask a question and inadvertently set an ABS code, illuminating the ABS lamp. How could this have happened?

The technician performing the lube service was unaware that the ABS lamp had been illuminated. The customer picked up the vehicle and returned within a few minutes complaining about the ABS indicator lamp. Quote: "You must have done something to my vehicle, the light wasn't on when I brought my car in for an oil change." The shop manager tried to explain that it was unlikely the condition had resulted due to something that his technician had done while performing a lube service. Later it would be determined that the customer was correct and the condition had occurred while the service was being performed.

Cause: While the second technician questioned his friend, who was servicing the vehicle, he spun a tire and wheel assembly with his hand. How many times have you walked past a vehicle on a lift and rotated a wheel

and tire? We all have. If you recall, the ignition switch was in the “on” position. With this ABS system, if the ignition switch is left in the on position and a wheel/tire is rotated, a false ABS wheel speed sensor code may be stored in the diagnostic memory, thus illuminating the ABS lamp.

The problem gets worse, as the technician was unable to erase the stored code and turn out the ABS lamp. A simple service and safety check, plus an honest mistake, had resulted in the customer being without their vehicle for the second day. In spite of all their efforts, they could not erase the stored code and turn out the ABS light.

Satisfying the Lamp: A Nissan tech came to the rescue by recommending a short test drive. On the Infiniti, the ABS lamp may continue to be illuminated after the diagnostic memory is erased with a scan tool. If you encounter this condition, drive the vehicle at speeds above 10 mph after clearing the memory with the scan tool. The ABS lamp should go out. When the procedure was performed, the code cleared and the ABS lamp was turned off.

ELECTRICAL GLITCH PROMPTS SWITCH CHANGE

Nothing can be more frustrating than a set of windshield wipers that fail in adverse conditions. And with the newer systems containing electronic circuit boards and modules, the failures are becoming very common. A rap on the wiper motor of a GM vehicle may bring life back to a failed wiper motor, at least long enough to get the vehicle in for a new circuit board. We call it therapy—it’s a desperate gesture and should not be considered a cure.

And then there are those wipers on numerous Ford applications that continue to run, even though the wiper switch is in the off position. Consider a 1999 Ford Explorer where the front windshield wiper continues to function after the multi-function switch is placed in the off position. Ford advises that the condition may be due to a resistance drift in the multi-function switch or a loose connector.

If the wipers continue to operate with the multi-function switch in the off position and all connectors are intact and fully seated, Ford recommends installing a revised multi-function switch. Do not attempt a repair by replacing the Generic Electronic Module (GEM) or the Wiper Control Module (WCM). Make sure that all connections are fully seated to the GEM, center instrument panel components, front wiper motor and multi-function switch during installation. Check the multi-function switch connection for loose connections, terminals and terminal push-out.

Do not attempt a continuity check or probe the circuits of the wiring harness.

WARNING: Deactivate the Air Bags, as outlined in the service manual, prior to performing any service operation involving the steering column components. Do not apply electrical power to any component on the steering column without first deactivating the Air Bags.

The applications affected by the revised multi-function switches include:

- 1999 Taurus
- 1999–2000 Mustang, Explorer, F150, F250, Ranger and Windstar
- 2000 Excursion
- 1999 Sable
- 1999–2000 Mountaineer

BOTCHED ACCESSORY INSTALLATION

The customer purchases a used Ford Ranger and you are called upon to diagnose a windshield wiper related problem. The wipers operate with the wiper switch in the off position or they can be turned on with the ignition switch in the off position.

After reading the previous problem and solution (Electrical Glitch Prompts Switch Change), it would appear that a multi-function switch would be the likely suspect. You run the connection tests and then obtain and install the multi-function switch, to no avail. Where do you go from here? Do some detective work and ask questions.

One of your first checks would be to determine if any electrical accessories have been recently installed. With the used vehicle mentioned in this column, this would not be an option, unless you could make contact with the previous owner. We see this situation very frequently and it often involves a vehicle that has received a new CD player or stereo that has been improperly installed. Another condition sometimes occurs when a vehicle is about to be traded. In a hurried effort, the inexperienced vehicle owner attempts to switch sound systems. A botched installation can back-feed and power-up other components or accessories such as the windshield wipers, creating a nightmare for the new owner and the technician trying to diagnose the problem. Before you waste a lot of diagnostic time, disable the electrical accessory to determine if it was contributing to the condition.

LARRY HAMMER
TECHNICAL SERVICES