PATTERN FAILURES

Solutions for Factory Induced Brake Problems

Dealing with brake system complaints can be a challenge. Don't complicate the problem by getting so anxious to fix the problem that you fail to take the time necessary to accurately diagnose the symptoms. It's easy to fall into a pattern of responding to the customer's request for a service, instead of making an evaluation and recommendation. The first objective is getting an accurate description of the symptom. The second step should be a road test, preferably with the customer, to positively identify the concern.

When noise is the issue, the friction is almost always the first suspect. It doesn't matter if the noise is a squeal, squeak or a metallic click. Numerous sets of disc pads may be installed in a futile effort to quiet the noise. Usually, the customer comes in requesting a brake job, assuming a friction change will alleviate the condition. Replacing the friction is not a fix-all solution, and taking that approach will certainly guarantee a comeback. Read on to determine how you may be dealing with a problem that was inherent in the vehicle during manufacture.

A METHODICAL APPROACH

Taking a methodical approach to the customer's complaint is imperative in making an accurate diagnosis and fixing the problem on the first attempt. Before you roll out the tool box, there are some fact gathering steps that should be performed. Taking this approach will make for a better brake repair and minimize returns due to an inaccurate diagnosis.

Getting The Facts

Getting the maintenance history of the vehicle can assist in the diagnostics and provide the technician and the customer the vital information necessary to determine the best solution to resolve the concern. Listed are some of the questions to ask:

1) What is the mileage since the last brake job?
2) Was it a complete service or just a disc pad change?
3) How long has it been since the hydraulic system was flushed and filled with new fluid?
4) Was there uneven wear when comparing the inboard and outboard pads?
5) Did the friction encounter premature wear?
6) Were noise-related symptoms present?
7) Any complaints concerning pedal feel, such as sponginess, long pedal stroke, etc.?
8) Were there symptoms of pedal pulsation or brake roughness?
9) How long has the condition been present?

Having these extra bits of information can make a difference in making an accurate diagnosis on the first attempt, and in making the best service recommendation to the customer.

INHERENT BY DESIGN

Sometimes you can do everything by the book and still encounter a problem.

Most problems are fixable, simply by following the proper diagnostic and repair procedures. And then there are those times when all efforts fail. Some problems may be inherent in the system by design and may require a factory modification to resolve the condition. Considering that, a part of the diagnostic procedure should always include accessing factory service information for any updates or modifications to circumvent a brake performance condition. When you encounter multiple vehicles of the same platform with similar conditions, you usually find a stream of technical data from the vehicle manufacturer. Let's consider some factory fixes for conditions that can elude our diagnostic efforts and really make us look bad.

FACTORY SOLUTIONS FOR GM's N BODY VEHICLES

If we had to pick a vehicle that is constantly in the discussion arena with technicians it would be the GM

N Body, which includes the Malibu, Cutlass, Alero and Grand AM. This platform is a good example of the necessity to have access to factory information when dealing with brake system complaints. If not, you and the customer are in for a miserable experience.

Clicking Noises at Low Speeds

Complaints of clicking noises from the front brakes at slow speeds, or when the brakes are applied and the transmission shifted into park or reverse on 1998 Malibu and Cutlass vehicles, are due to excessive clearance between the front brake caliper brackets and the disc pads. The cure is GM's service kit P/N 18025018, which includes revised abutment shims and new caliper slide pin bolts.

Brake Squeak During Pedal Depression

A squeaking noise from beneath the dash in the area of the power brake booster may require a new booster. The symptoms are the result of a formulation problem with the material used in the rear seal of the brake booster. Vehicles affected include 1997–99 Malibu, Cutlass, Alero and Grand AM vehicles. The VIN Breakpoints and vehicle production locations of the affected vehicles are illustrated in GM bulletin #83-50-23.

Clunking Rattling Noise

A clunking or rattling noise from the front of the vehicle on 1997–2001 N body applications equipped with automatic transmissions may be confused with disc pad or caliper movement related noises. If the noise dissipates when applying light brake pedal pressure, while exerting some slight side pressure on the pedal linkage, a new brake pedal assembly will be necessary. The condition is due to a defective pivot pin bushing. GM offers a new pedal assembly P/N 22672398 for certain production vehicles identified in GM bulletin #01-05-22-001. The vehicles involved are documented by VIN breakpoints and production locations.

Pedal Pulsation

Pedal pulsation complaints on 1997–2003 N Body vehicles prompted GM to adjust friction formulations to a less aggressive formula for the front disc pads. Pulsations due to thickness variations in the rotor were occurring within 5K to 10K miles following a brake service, tire rotation, or any type service that involved a wheel removal. Excessive lateral runout of the rotor was the actual problem, due to improper wheel lug nut tightening procedures. The original friction formulation contributed to the uneven rotor wear when excessive runout conditions were present, resulting in the pads wiping and wearing the rotors, affecting the parallelism. GM's N body platform will not allow runout in excess of .0015 inch without promoting pedal pulsation. This specification is much tighter when compared to other vehicle runout specs.

Disc Pad Installation

The disc pads can be incorrectly installed on some GM N body applications, especially if the center anti-rattle clip is left off during a pad installation. Installed incorrectly, the skirt of the caliper will make contact with the D-shaped lugs on the disc pad plate, where the wear sensors are staked onto the plate. This condition results in premature, uneven, or tapered friction wear. In addition, a wheel binding or total wheel lock-up can occur when the space-saver tire is installed. Be aware that the service manuals illustrate that the disc pad with the wear sensor is to be positioned on the outboard side of the caliper. ***This is not the correct position for the pad.*** When the disc pads are correctly installed, the disc pad with the wear sensor will be positioned on the inboard side next to the piston, and the wear indicator will be positioned upward. This will establish a right and left side for the inboard pads.

The GM N Body braking system has encountered numerous modifications to eliminate brake system complaints. If you are not aware of the changes and updates, you may never satisfy the customer's concerns. Switching suppliers or friction formulations will offer little assistance to a system with problems that are inherent by design.

When dealing with vehicles with pattern failures, good communication with the customer is imperative. It can protect the shop's credibility. Telling a customer what to expect before they encounter it goes a long way in retaining good customer relations. Sure beats trying to be on the defensive after the fact.

LARRY HAMMER
TECHNICAL SERVICES