



Tech Tip

BRAKES & WHEELS 199

BRAKES, TIRES AND WHEELS

Factory Solutions for Some Challenging Symptoms

Nothing can be more frustrating than spending countless hours trying to diagnose and resolve a customer's complaint only to determine late in the diagnosis there was a factory bulletin available that would have quickly resolved the problem. In many cases the material contained in the TSB, campaign or recall is the only solution, as the concern is often corrected with a system update or component modification.

VACUUM LOSS—INCREASED BRAKE PEDAL EFFORT

Vehicle owners may encounter an increase in the brake pedal effort, a vibration in the brake pedal, plus an increase in the stopping distance primarily during slow speed stopping while gently applying the brakes.

This condition is due to a decrease in the vacuum provided by the engine mounted vacuum pump, necessary to provide power brake assist. The vehicle manufacturer cautions that poor maintenance intervals may contribute to failed vacuum pumps. The pump is lubricated with engine oil that flows through a filter screen. Lack of maintenance can contribute to sludge, which can block the oil flow through the filter screen, resulting in pump failure.

The Driver's Information Center may display Service Brake Assist 2-5 minutes following a drop in the vacuum level and a Diagnostic Trouble Code may be stored. According to GM the hydraulic brake system remains functional but may require additional pedal force to stop the vehicle.

GM has issued a service bulletin #N182202780-01 titled *Special Coverage – Brake Assist Decreased Due to Vacuum Loss*. Vehicles affected include the following:

- 2015-2017 Cadillac Escalade, Escalade ESV
- 2014-2018 Chevrolet Silverado LD
- 2015-2018 Chevrolet Suburban
- 2015-2018 Chevrolet Tahoe
- 2014-2018 GMC Sierra LD
- 2015-2018 GMC Yukon, Yukon XL

The number of vehicles affected include 3.4 million SUVs and trucks. GM has extended the warranty coverage of the vacuum pump for a period of 10 years or 150K miles, regardless of ownership.

Prior to this extension of the warranty, dealers were advised to reprogram the electronic brake control module with a new calibration that would improve how the system utilizes the hydraulic boost assist function when vacuum assist is depleted.

In September 2018, GM issued a Service Bulletin #PIT5361D titled *Additional Brake Pedal Effort*. The symptoms illustrated were the same as those previously mentioned but included an inspection of some additional components. When performing a vacuum source test, if low vacuum is present and determined to be the fault, the technician should inspect the vacuum line to the brake booster and the booster for the presence of engine oil. If no oil is present, then only replace the vacuum pump. If oil was present in the vacuum line and booster, the vacuum pump, vacuum line between the booster and pump, brake booster and master cylinder should all be replaced. The contents of this bulletin was not mentioned in the extended warranty bulletin, but worthy of an inspection.

UNINTENDED BRAKING

GM advises that a safety defect may result in certain 2014-2018 Chevrolet Silverado and GMC 1500 vehicles equipped with four-wheel drive, 5.3L engine and a 3.08 gear ratio rear axle. Other applications include 2015-2020 model year Chevrolet Suburban, Tahoe and GMC Yukon vehicles equipped with four-wheel drive, the 5.3L engine and a 3.08 gear ratio rear axle.

These vehicles may encounter unintended braking due to a failed wheel speed sensor. According to GM, a software error in the electronic brake control module (EBCM) can cause the vehicle's driveline protection system to activate when the vehicle's electronic transfer case is set to four-wheel drive or automatic mode and the vehicle is driven between 41 and 60 MPH. If the driveline-protection system activates, the driver will encounter unintended braking on the wheel opposite the side of the failed sensor, on the same axle. Obviously, this condition would create a pull to one side, which could result in a crash. A failed wheel-speed sensor will illuminate the vehicle's Electronic Stability Control and Anti-Lock Braking malfunction indicator warning lamps and the Driver Information Center will display a "Service StabiliTrak" message. The necessary repair involves a

reprogram of the EBCM. This information and notice are covered in GM recall N192261050-02.

INTERMITTENT BRAKE LIGHT ILLUMINATION

Customer complaints of an intermittent red park brake light illumination is a normal occurrence for 2013-2018 GM Passenger Cars and Trucks.

This may be due to the system automatically applying the electronic parking brake (EPB) when the vehicle is not moving. This is normal for the system and is done periodically (every 50 key cycles) to confirm the correct operation of the EPB system.

Communicate this operation with the customer that this action is a normal characteristic of the vehicle and will not impact performance or reliability of the vehicle.

For additional service information and some safety concerns please review Mighty Tech Tip #195 "BRAKE SOLUTIONS." The information may prevent personal injury when performing a brake service.

CLICKING NOISE FROM FRONT WHEELS

Clicking noises from the front wheels while turning at slow speeds (10-20 mph) during full wheel lock turns on dry pavement may be caused by the interaction between the wheel mounting face and the wheel mounting surface of the brake rotor. According to GM the following vehicles may be affected:

- Buick Enclave 2012-2018
- Chevrolet Camaro 2016-2018
- Chevrolet Corvette 2014-2018
- Chevrolet Traverse 2012-2018
- GMC Acadia 2012-2018

If you encounter a customer complaint of clicking noises from the front wheels while turning at slow speeds, a clean-up of the wheel mounting surfaces should be performed. Replacement of the wheels or brake rotors is not recommended.

Remove the wheels and clean the mounting surface of the wheels and the brake rotors with brake cleaner. Remove any material that may have accumulated on the mounting surfaces.

Pay special attention to clean the area near the wheel pilot at the center of the rotor.

Power tools should not be used, only clean with a cloth saturated with brake cleaner.

Reinstall the wheels and torque the lug nuts to spec.

TIRES FLAT SPOTTING

If your business involves tires, alignment and suspension related repairs, the following information may save

you much time and frustration in trying to resolve a customer complaint that may not be fixable until the original equipment tires are replaced.

For those that have been in the automotive service industry prior to the early 70s you will remember the customer complaints created by nylon cords in the construction of the tires. The cord construction promoted a flat spotting of the tires after the vehicle was parked overnight, or for any extended period of time. The early morning ride was like riding on egg shaped tires. Polyester cords replaced the nylon in the construction of the tires and the customer complaints were resolved.

GM advises that under certain circumstances a customer may complain of a slight tire shake within the first few miles of vehicle operation. The original equipment tires may be designed with a nylon overlay configuration engineered to enhance the tire's integrity at high speeds. This allows the tires to be driven at higher speeds without excessive heat buildup.

The vehicle should be driven a minimum of 15 miles to ensure removal of any flat spotting. The condition to flat spot will decrease as the tires accumulate mileage. No repairs are recommended.

WHEEL SLIPPAGE PROMOTES VIBRATION

Customer complaints of a vibration after having tires mounted may be due to slippage of the tires on the wheels resulting in an imbalance of the tire and wheel assembly.

Wheel slippage occurs when the tire slips on the wheel during sudden acceleration or braking. This condition is most common on chrome or clear coated wheels with smooth bead seat areas but can also occur on alloy or steel wheels and most often occurs directly following a tire replacement.

Lubricants applied in the wrong location or in excessive amounts are usually the reason for the condition. This can create an interface between the tire and rim that can be slippery, promoting slippage of the tire on the rim, resulting in imbalance symptoms.

When mounting the tires, the technician should place a chalk mark on the tire at the valve stem location. Slippage in excess of one inch is likely the reason for the vibration symptoms. Customers that immediately return with tire balance symptoms following a tire replacement should have the tires and wheels examined for slippage.

There is a 24-hour window that the vehicle should not be driven under hard acceleration or aggressive braking. This allows the lubricant ample time for evaporation/drying to achieve adherence to the rim.

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