BRAKE SOLUTIONS

Service Tips for the Brake Technician

The owner of the 2013 Ford F150 encountered a brake performance issue, which involved a pulling condition during brake application. The vehicle was a recent purchase with little maintenance history from the previous owner, other than an invoice in the glove compartment that reflected a recent disc pad replacement.

With assistance from a neighbor, who performed his own vehicle maintenance, they pulled the front tire and wheel assemblies for a visual inspection. They observed uneven pad wear on the left front outboard pad and rotor, but they failed to identify the reason for the uneven wear condition. Their primary focus had been on loose, worn or missing components and they missed a major installation mistake. The mistake made when the disc pads were installed is a common problem with this disc pad assembly, and we have seen it made at different levels of expertise. Read on for the solution and be advised it may be encountered on the following applications:

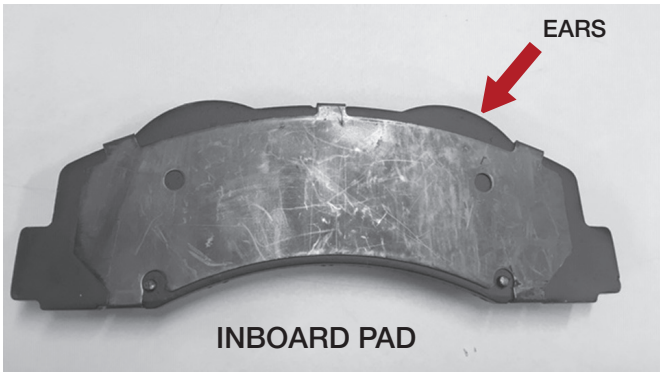
2010-2019 Ford F150

2010-2019 Ford Expedition

2010-2018 Lincoln Navigator

When installing the disc pads on one of the mentioned applications, pay special attention to the disc pad plate configuration. The inboard pad features two small ears at the top of the pad plate (see illustration). If this pad is installed on the outboard position in the caliper, it is certain to bind in the caliper housing, resulting in the disc pad not making full surface contact with the rotor. This condition results in the friction wearing at an angle, uneven rotor wear, residual drag causing premature wear, brake pull or wheel damage due to the caliper making contact with some custom wheels.

Be observant when performing a brake inspection on one of the mentioned applications. You would be shocked at the number of disc pads that are being installed incorrectly, especially with those that perform their own maintenance.



ELECTRONIC PARKING BRAKES

Many vehicles are coming equipped with electronic parking brakes (EPB) instead of the conventional mechanical operated cable system. Some of these systems utilize an electric motor and gear mechanism mounted on the brake caliper to apply pressure on the piston during parking brake application. Others utilize an electric motor that controls cables to accomplish the same. This arrangement is a space saver in the passenger compartment and it helps eliminate rusty, frozen or broken cable encounters.

When performing a rear disc brake service it is imperative that you follow the vehicle manufacturer's proper service procedure to put the EPB system in the service mode to prevent injury to the technician or damage to the system. For example, consider Ford's recommended Electronic Parking Brake Service Mode Activation and Deactivation procedure for the Fusion illustrated in ALLDATA:

Activation

Warning: Service actions on vehicles equipped with electronic parking brakes may cause unexpected parking brake application, which could

result in injury to hands or fingers. Put the electronic parking brake system into service mode prior to servicing or removing rear brake components. Failure to follow this instruction may result in serious personal injury. Service mode is also known as maintenance mode.

Note: Carry out the following service mode activation procedure to deactivate the EPB system.

1) Set the ignition switch to the ON position.

2) Press and hold the accelerator pedal and place the EPB switch to the Release (downward) position. Continue to hold the accelerator pedal and the EPB switch.

3) Set the ignition switch to the OFF position, then set the ignition switch to the ON position within 5 seconds. Continue to hold the accelerator pedal and the EPB switch.

4) Note: The EPB system will be deactivated, preventing parking brake application until service has been completed and service/maintenance mode has been deactivated. The yellow EPB indicator will be illuminated and Maintenance Mode will display on the message center. Note: When replacing rear brake pads in service/maintenance mode, the caliper piston must be compressed into the caliper housing. The caliper piston does not have to be rotated while compressing the piston.

5) Set the ignition switch to the OFF position, then release the accelerator pedal and EPB switch.

Deactivation

Note: Carry out the following service mode deactivation procedure to activate the EPB system.

1) Set the ignition switch to the ON position.

2) Press and hold the accelerator pedal and place the EPB switch in the Apply (upward) position. Continue to hold the accelerator pedal and the EPB switch.

3) Set the ignition switch to the OFF position, then set the ignition switch to the ON position within 5 seconds. Continue to hold the accelerator pedal and the EPB switch.

4) Note: The EPB system will fully apply and release the parking brake to guarantee a sufficient air gap between the rear brake pads and brake disc.

5) Release the accelerator pedal and the EPB switch.

SERVICE PROCEDURES VARY

Some vehicles are equipped with an automatic EPB system that applies the parking brake when the transmission is placed in the park position. For service, some steps must be taken to prevent the parking brake from applying, as failure to follow this procedure will prevent the technician from removing the rear calipers from the rotors. For example, the Lincoln LS equipped with this feature requires holding the parking brake switch in the down position while turning the ignition switch to the off position to prevent the parking brake from automatically applying. Some vehicles require the use of a scan tool to place the calipers in the service mode and to reinitialize them.

Service procedures vary from one vehicle manufacturer to another. Make certain you follow the proper service procedure for that specific vehicle or system, when servicing the rear calipers or replacing disc pads. Failure to follow the proper service procedure can result in damage to the vehicle or personal injury to the technician.

BATTERY DISCHARGE

Dead batteries present a problem for both the vehicle owner and the tow truck operator. Some systems have mechanical overrides, while others require battery voltage to disengage the EPB system. Portable jump-starters may be a popular item to have on those vehicles equipped with the EPB system.

A little research prior to the service can save a lot of time and frustration, in addition to some hands and fingers.

LARRY HAMMER, Technical Services
Mighty Distributing System of America