

Bulletin BPI 07-11

Subject: Brake Pad puck (lining) Shearing

Vehicle Involved: All Vehicles

Condition: Brake puck (Lining) shears off backing plate

Repair Procedure:

The shearing of lining material off the backing plate of brake pads may be caused by numerous reasons. The technology for attaching brake pads has evolved from riveting, to integrally molded, to a NRS (trademark) process. The NRS process combines the integrally molded process with a special plate that has interlocking nibs formed in it.

This NRS method has proven to be the most durable method to date.

Lining shearing is more common on vehicles that carry heavy loads, and use a sliding caliper design. The sliding caliper is used because of the strength it provides in stopping vehicles that carry a heavy load. Sliding calipers tend to wear at the point they slide in the bracket assembly.

As they wear, the gap between the caliper and the bracket widens, allowing the caliper to shift when the brake is applied. This movement causes a pounding affect on the lining material. As the caliper and bracket wears the movement becomes greater, in turn intensifying the pounding on the lining. This constant pounding may cause the lining to shear off. The use of the NRS attachment process prevents this from happening, but is limited. In this case the proper procedure would be to replace the caliper and bracket assembly or use oversized caliper retainer keys to prevent the movement.

Overheating the material is another reason for linings shearing off. Resins are used to bind the materials together and if those resins are boiled out, the material loses its strength. Heavy loads and aggressive driving habits lend themselves to overheating the brake system, weakening the lining material. Keeping the brake pedal depressed for a long period of time causes lining material to overheat and weaken.

Rotors are design to dissipate heat while braking. The fin configuration plays a major role in accomplishing this. Rotors that do not match the original design, may contribute to an overheated brake, weakening the lining and contributing to lining shear. Plugged rotor fins restrict the flow of air and diminish the coolant

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ability of the brake. Vehicles that are used for off road driving are more likely to have this condition.

When driving a vehicle that is prone to lining shear, avoid keeping your foot on the brake pedal for long periods of time. Avoid quick go and stop operations. Use defensive driving habits at all times, to minimize aggressive stops. Use premium lining material and rotors that match the original design. Inspect rotor fins to assure they are clear for air to circulate and cool the brake. Replace caliper and bracket when in doubt. Do not overload the GVW of the vehicle or its towing capacity.