

Bulletin BPI 13-03

Subject: Brake Pedal Pulsation 2-4,000 miles after brake service

Vehicle Involved: All with Disc Brakes

Condition: Rotor Run-out specs not followed

Repair Procedure: Brake Parts Inc (the makers of Raybestos brand brakes) has created many bulletins concerning rotor run-out and how to correct it (Bulletins 06-13, 07-10 and 03-01). However, calls are received daily concerning brake pedal pulsation and supposedly "warped" rotors... typically 2-4,000 miles after service. This bulletin explains the reasons why checking rotor run-out is so important when servicing brakes.

Most vehicles since 1999 have a rotor run-out spec of .002". In prior years, .007-.010 was typical. Brake pad composition was one reason all manufactures tightened up the specs. The pads used in the 80s and 90s were primarily made of soft materials including asbestos. These pads were very forgiving, with very little noise and usually didn't wear the rotors. Today's pads are typically semi-met or ceramic. If the rotor run-out is more than spec, the constant pad to rotor contact at one small area will cause a thickness variation. This occurs without touching the brake pedal; just rolling down road. If the pads are semi-met, the rotor will wear thinner in one spot from an abrasive action. If ceramics are used, they will leave an uneven buildup of material causing a slip-stick condition. Ceramic pads can have material transfer to the rotor, which is called adhesive action. For smooth stopping, the key is to apply pressure evenly over the rotor. It only takes a few thousandths for driver to feel pedal pulsation.

There have been numerous factory bulletins on this subject over the years explaining the need to check run-out. Recently, many industry tech magazines have had articles targeting this issue. Many shops are investing in on-the-car brake lathes and hub correction shim assortments.

So, to limit your brake pulsation comebacks, start performing the extra 2-4 minutes per wheel step of checking run-out. In our experience, only 2-3 out of 10 rotors need correction. Usually, just rotating the rotor on the hub to index will get most in spec. Be sure to note run-out specs on the repair order and educate your customer. Also, torque lug nuts correctly to minimize run-out when rotors expand from heating.

The extra time spent will not only prevent you from doing the job over, it will set your shop apart from the \$99 ones.