

**Bulletin BPI 06-20**

**Subject:** Brake Pulsation

**Vehicle Involved:** All

**Condition:** Brake pedal pulsation with the brakes applied:

Brake pedal pulsation with the brakes applied, may be the result of rotor thickness variation typically described as parallelism. Parallelism is when the rotor thickness varies from one point to another.

Brake rotor parallelism causes the piston, with pressure applied, to move in and out of the caliper housing. The movement is transmitted hydraulically back to the master cylinder piston, and then mechanically via the pushrod linkage, to the brake foot pedal, and eventually to the operators leg. Rotor thickness variation may take place in 3,000 to 10,000 miles.

**Parallelism is caused by lateral run-out**

Rotor thickness can decrease as the pads make contact with the high spot on the rotor. It causes the rotor to wear at that point, eventually creating parallelism. The process continues to escalate as that wear pattern is established.

Rotor thickness can also increase when this condition exists. Rotor lateral run-out may create a condition that allows the brake pad to rhythmically contact the rotor surface at the high point. This constant contact may increase the temperature of the friction material and the rotor surface. It may eventually cause friction material to transfer to the rotor surface, creating a residue build up on the rotor surface. This change of thickness at various locations around its circumference will cause the caliper pistons to move in and out.

To minimize the potential of a pedal pulsation come back, the technician needs to service the calipers, rubber and hardware kits or install remanufactured components. Evaluate and resurface the rotors or replace them, and replace the friction with the original manufactures recommended friction material.