



# ABS brake pulsations

How to address ABS brake pulsations

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## INTRODUCTION

Brake pulsations in cars with ABS

Two common faults can cause your brake pedal to pulsate when braking: dirty sensors and warped disc brake rotors.

Here is a simple way to detect a warped rotor. Go to a deserted open smooth area to perform this test. Accelerate the car up to 10-15 mph, and then let it coast in a straight line. Apply the brakes GENTLY until you feel them pulsate under your foot. If the pulsations are absolutely regular, then they are synchronous with wheel rotation.... which is 99% indicative of a warped rotor. This test does NOT tell you whether it is the fronts or rears at fault.

Disc brake rotor warp occurs when the disc fails to trace a absolutely flat planar path when it rotates. This deviation is often very small, on the order of thousandth's of an inch, and is normally detected by removing the rotor from the axle, mounting it so that it can rotate freely in a shop, the rotating it by hand and measuring the run-out with a standard dial gauge. Warp occurs from rotor overheating from hard-braking. Aggressive drivers can cause this type brake rotor distortion in a few hundred miles.... others may not see it for many tens of thousands of miles, or ever.

Having a factory published repair manual is invaluable in tracking down and servicing ABS brakes. ABS sensors are cylindrical magnets surrounded by a coil, and mounted inside the disc brake support. They are subject to collect metallic debris from the pads, which will degrade the generated signals to the ABS computer, causing it to actuate ABS inappropriately, evident by the brake pedal pulsating. Most are secured with a single hex bolt. Removal and cleaning the sensors is a straight-forward operation, easily done at home.

Replacing brake rotors are another matter; although possible in a home garage, it may be best performed by a competent brake mechanic. Brakes are a crucial safety measure in a car, and there is no reason to put repair cost before driver safety. It is advisable to replace rotors in pairs: both fronts or both rears. Since the pads need removal anyway, good time to replace them as well, as well as checking the disc brake fluid seals of the pistons.

Infrequent causes of ABS generated brake pulsations are faulty sensor coils, fractured wiring between sensor and ABS computer, dirty/corroded connections to the ABS computer, intermittent power connections to the ABS computer (ie a fracture in its fuse), or internal component failure inside the computer. Tracking down these faults is time-consuming and can be quite expensive. Each manufacturer has a step-by-step process clearly outlined in their manual.

## **TOOLS:**

- 1) hydraulic lift 2) rigid support for car 3) wheel chocks 4) set of hex wrenches, 5) set of socket wrenches 6) paper towels (1)
- 7) a detailed manual for your specific make and model of car (1)

## Step 1 — An approach to brake pulsations in cars with ABS



- Insert wisdom here.