

Adjusting Rear Wheel Bearing Axial Clearance

In our quest to update VW drum brake technology to a touch more modern disc set up, we have found a few “bumps” in the project that may need attention.

Before we get into the fixes, it is important to understand the function of the components.

The original rear wheel bearing system and drum brakes function with a very small amount of axial “float” in the bearings. This float is needed as the bearing retainer also bolts/compresses the drum brake backing plate to the rear axle housing and acts to accept brake torque. With the use of drum brakes, the amount of float is less critical and will not affect braking capacity as the drum moves in/out under cornering loads. The Germans are pretty picky about holding nice close fits/tolerances, so the original float is very small and rarely noticeable.

Now, we come along and bolt up our newer disc brake technology onto something it was never designed to have and a few troubles can show up. The common issue is that the manufactures of these kits build in plenty of bearing axial clearance to ensure the bearing retainer fully compresses down on the caliper bracket. The problem for us is that as cornering loads are applied, the increased axial bearing float allows the rotor to push the brake pads back. The next time the brakes are applied, the pedal has that much farther to be depressed to compensate for the increase in brake pad travel. It took a while to find this out, as it is not typically seen with the car stationary in the paddock.

The simple way to check if this needs adjustment can be done anywhere in this fashion. Pump the brake pedal to get maximum pedal height. Next, push very strongly side-to-side on the roll bar to simulate cornering load. Depress the brake pedal again and note any increase in travel. If the rear bearing float is too much, the applied pedal height change will be dramatic. By design, the bearing float must be present and some variation in pedal travel (1/4” or so) can be measured, but typically not noticed by the driver. The point of un-acceptability is typically when pedal travel is described as “it goes to the floor on the first pump, but then it’s OK”.

