

WOODINGS WHEEL BEARINGS ADJUSTMENT AND SERVICE

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If you own a Woodings motorcar you know that nothing is said in the owner's manual on the procedure for adjusting the wheel bearings. Many of us have seen Woodings throwing wheel bearing grease out all over the side of the wheels. When I see a Woodings throwing grease all over the side of the wheel it's one of two things: not adjusted correctly or wrong type and/or grade of grease. I have developed a service and adjustment procedure that I hope will work for you.

I own 3 Canadian built Woodings and when I took ownership none of them had the bearings adjusted well. Now after I grease the hubs and purge all the old grease in the spring they will kick out a little grease on first run but after I then wipe off this excess with paper towel they are good for the rest of the season. I'll show you how you too can have the same results.

Woodings front wheel hubs use non-contact, radial, labyrinth design, seals. Woodings use tapered roller bearings like most automobiles, trucks, tractors, railroad motorcars. The designers decide to use more precise adjustment with shims not castle nuts. Most castle nuts have 3 slots for the cotter pin. This type of bearing and shim arrangement is common on industrial equipment and machinery but the lack of adjustment may result in semi loose front wheels bearings, likely causing more wear of the wheels and tracking issues.

For more precise clearances, shims are required. So, what do you need to adjust your Woodings wheel bearings? This is my list:

- 1) A shim pack from PRECISION BRAND PRODUCTS part number 25320. You can buy them from W.W. Grainger, Dean Marks, or local bearing house.
- 2) A 1" micrometer or dial calipers, accurate to ± 0.001
- 3) 6 cans brake cleaner
- 4) 1 can of 3-In-One household oil
- 5) A grease gun and 2 tubes grease

Okay, first things first: SAFETY, SAFETY, and SAFETY!!!! Always use safe supports for your motorcar, well made jack stands on solid surfaces. After you place your Woodings axle or frame on the jack stands, shake and push on your motorcar and see if it is solidly supported. If it doesn't fall let's go to work.

Remove the front brake shoe assemblies from both sides of the motorcar. Then grab hold of each wheel and give them a shake. Do they go clunk-clunk? The more they clunk, the looser the bearings.

Remove cotter pin and castle nuts from axle. Remember these are right hand threads so righty-is-tighty and lefty-is-loosy. The wheel bearing hub assembly should slide off but if it won't, a few solid blows to the back of the wheel with a soft face, dead-blow hammer will get it moving. If not, a 3 jaw puller may be used.



Now that the wheels are off, start cleaning everything really well. Blow out bearings and rewash as needed until they are nice and clean and turn freely. Clean the bores of the hubs out and inspect bearing for pits, flaking, scoring and any other surface defect, you know what a good race looks like. Be very careful because the machined-in-hub labyrinth seal grooves are sharp and will cut fingers!

If one of the races is loose in one of the wheel hubs, you will need either a replacement hub or you can take



it to a machine shop and have it bored out and a sleeve installed to tighten the race. In a tight time line, I have used Loctite 609 bearing retainer with good results.

Now inspect the bearings themselves. Use a magnifying lenses or a desk mounted lighted magnifying lens, great for splinters in fingers and hands too!

Are the rollers smooth and shiny or do you see any defects? Defects in the bearing surface are reasons for replacement. You know what a good bearing looks like.

Now, check the bearing hub on the axle. Is it good or has a bearing inner race been turning on the hub and created grooves? If it is grooved, it is time for a replacement hub. A good machine shop can make a sleeve that is heated and installed over the turned down wheel hub.

The bearing hub is insulated from the axle with black nylon so the car doesn't trip crossing gates.

Pay close attention to the correct assembly order when reinstalling everything. I show an exploded view that the Woodings manual does not have. It is very important to put the non-conducting fiber washer between the out bearing plate and the steel washer next to the castle nut. This, in conjunction with the non-conducting wheel hub nylon sleeve, will keep the wheel assembly insulated, preventing the conductance of voltage between the rails, aka "shunting".

Now lube the bearings with the 'light' 3-In-One oil, because bearings should never be run dry. The 3-In-One is light enough that it won't give a false thickness indication in the next step.

Now put everything back together keeping everything nice and clean. For adjustment purposes the castle nut does not need to be super-tight at this time.

Grab the wheel and try to wiggle. Does it go clunk-clunk? Let's assume it does. Remove the castle nut, steel washer, fiber-washer, outer-bearing plate and all the shims that were in front of the inner bearing plate.

Sometimes you can hit the wheel with the palm of your hand and the outer parts come part way out and you can grab the plate and all the shims.

Have a note pad close by and measure the total thickness of the shim pack and write them down. Then measure each shim and see if they total to the same number ± 0.001 . Mark on each with black marker what they measure so you know what thickness each one is you are working with.



Look at the shim you just took out and maybe remove a .010, then put all back together again and see what you have. A smaller clunk-clunk or a bind? Keep working with the shim pack until you have a small clunk or maybe just a wiggle, but never a bind or resistance in turning. When I get down to just a fine wiggle I then make changes as little as .002" Now is when you most likely will need the new shim pack as you will need a .015" to replace the .020" that came in the motorcar. I take the shim pack down .005" at a time then .002" by mix and matching them until I get the desired free clearance.

Could you use a dial-indicator on the outer face of the