

THE MODEL A TOOLBOX

FRONT WHEEL BEARING ADJUSTMENT AND ALIGNMENT

by Colin Lawson

Bearing Adjustment:

Dealers were given instructions for setting wheel bearings in the Service Bulletins and that was used as a guide for many other books. The instruction typically says to tighten the wheel bearing nut to give a drag when turning the drum, then back off the nut by “one or two slots” and insert the cotter pin. This will result in the drum turning freely – BUT – the wheel bearings may be too loose. This results in increased wear of the spindle that is already prone to wear due to wheel torque pressure.

Check for free play:

- Grasp the drum hub and try to move it in and out, listen for a clicking sound, indicating loose bearings
- Grasp the top and bottom of the brake drum and alternately squeeze the drum towards the backing plate listen for a clicking sound, indicating loose bearings
- Turn in the nut until there is no clicking sound and the wheel still turns freely
- Check the alignment of the nut slot to the pin hole, insert a large cotter key to test. Back up the nut to take up cotter key play.

Adjust to align the slot and hole:

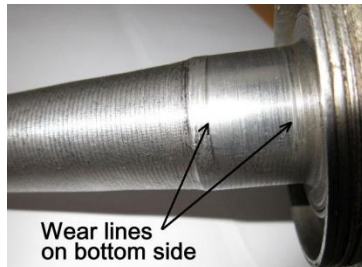
- If available, try different nuts since the thread starts will be in different locations
- If available, select a thicker or thinner thrust washer
- Alternately the back of the nut can be sanded or lightly flat ground to make the adjustment.
- With the large cotter key installed -11/32” (5/16” is small) and the nut backed up to take up cotter key play and there is minimal clicking sound and the wheel turns freely, then you can bend back the key. Congratulations

Rework:

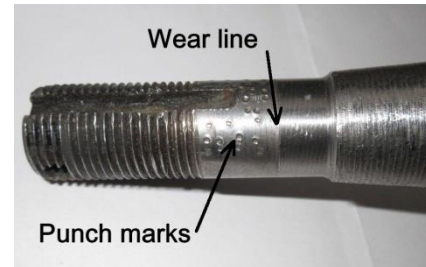
Pack the two bearings with wheel bearing grease or multipurpose high pressure grease with NLGI 2 rating.



Completely pack the bearing with grease (NLGI-2 rated)



On this spindle the wear grooves will result in loose fitting bearings



5 rows of 4 marks to raise the surface

The unfortunate part of this story is that there are no new spindle assemblies. The fix is either to expand the worn surface or weld to buildup and re-machine. The garage fix that often works but is less than ideal, is to build up the metal in the worn areas by punch marks with a hammer and centre punch. The ridges of the displaced metal are then smoothed off with a fine file to create a snug fit for the bearing. This will last for a long time when the slack is minimized as described above.

Wheel Alignment:

Improper toe-in can cause poor car handling and uneven tread wear. Here are two procedures to use. Jack both front tires off the ground and use jack stands under the axle. The front-of-tire toe-in measurement should be 1/16 inch shorter than the rear-of-tire measurement. The Canadian Service Bulletin May 1929 reduced the toe-in range to 1/32 - 3/32”. A good measurement tool is a 25 cent coin.

String Method:

1. For both sides, tie a hook or carabiner to a length of string or cord; attach the hook to a rear wheel spoke near the running board. Stretch the string under the running board, past the front wheel spokes below the hub cap and attach a loop to a jack stand placed in front of the tire. The string must not touch any part under the running board or spokes and must be pulled taut with the stand.
2. For both wheels, place a piece of tape marked with an arrow on the tire to align with the string. Rotate the tire so the mark aligns with the other string intersection point.
3. On the driver's side carefully adjust the steering wheel and the jack stand so that the string will just touch the tire near both intersection points. This will indicate a parallel wheel position.
4. On the other side rotate the wheel to align the mark to the rearward string position, align the stand so the string barely touches the tire. Keep the string taut.
5. Rotate the wheel to the forward mark position and measure the space between the tire and the string. It should be $1/16$ " (thickness of a 25¢ coin).



Hook on Rear Spoke



Front string intersect and jack stands



Rear string intersect

If the measurement does not meet the specification, then you must loosen the tie rod end bolts and rotate the tie rod. Rotating the top of the tie rod towards the front will increase toe-in. When you turn the tie rod, all measurements will change so the complete setup must be repeated. Always compare the rear measurement to the front measurement after each small adjustment and after the bolts are retightened with cotter keys. The clamp bolts should be at the back side of the tie rod ends.

Note: With a vise grip attached to the tie rod, about 4" of handle movement will give about $1/16$ " change.

Measuring Tool Method:

1. Make a tool (modified extendable, spring loaded shower curtain rod with 8" chains attached at each end, or equivalent).
2. Place the gauge tool between the inner fronts of the tires so the chains just touch the floor.
3. Mark a line at the pipe overlap.
4. Roll the car forwards to rotate the gauge to the rear so the chain just touches the floor and mark a line at the overlap.
5. Measure the difference; it should be $1/16$ ".



A problem with this method is the tire will compress the gauge when rolled and may move its position.

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