

FRONT AXLE & FRONT SUSPENSION - Steering Knuckle & Axle Shaft 5-11

tions produced while making a sharp turn on a curve can be reduced to a great extent.

Before proceeding with the adjustments, remove all grease from the related parts. Dry and inspect each part for wear and other defects, and replace if necessary.

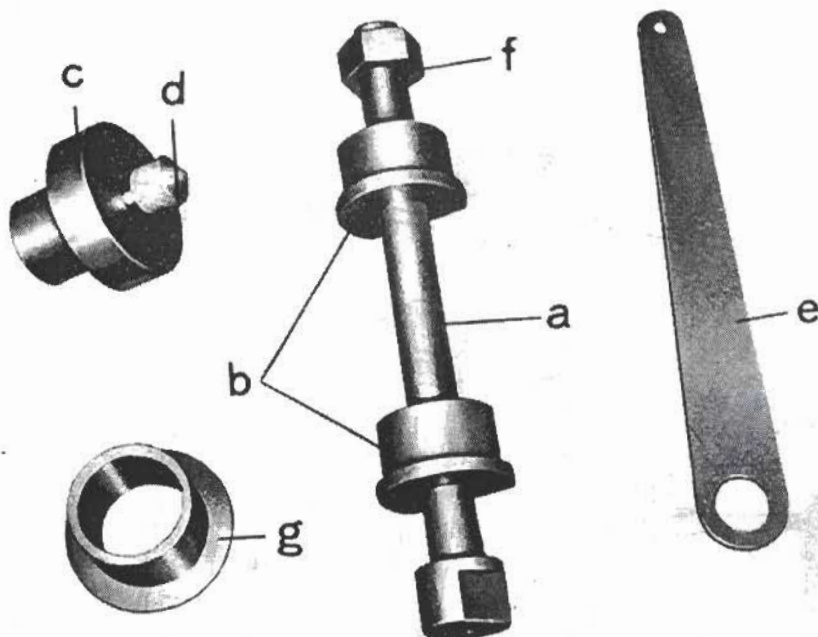


Fig.5-15 Steering Knuckle Centering Gauge

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1. Steering knuckle bearing pre-load.

a. Install the centering gauge adapter (c) with the plug (d) into the axle inner shaft bushing.

Caution:

The axle shaft of the birfield joint type is not provided with the bushing in the axle housing, therefore, before installing the centering gauge adapter (c), remove the oil seal in the axle housing end, and the centering gauge adapter (g) should be installed instead of the axle inner shaft bushing into the axle housing end, and then install the centering gauge adapter (c) with the plug (d) into the axle housing.

b. Install the centering gauge attachment (b) and the steering knuckle lower bearing onto the centering gauge rod (a), then assemble the centering gauge rod onto the axle housing end from the bottom as illustrated in figure 5-16.

c. Next, install the steering knuckle upper bearing, centering gauge attachment (b) and the centering gauge lever (e) onto the centering gauge rod (a), then install and tighten the centering gauge nut (f), but do not tighten excessively.

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d. Attach a pull-scale to the end of the centering gauge lever (e), and while exerting a steady pull on the pull-scale at right angle to the lever, note the reading on the pull-scale.

If the reading is not within 2.0 ~ 2.5 kg (4.4 ~ 5.5 lb), loosen or tighten the nut until the specified pre-load is obtained.

e. After having obtained the specified pre-load, measure and record the distance "A" between the centering gauge attachments as illustrated in figure 5-16.

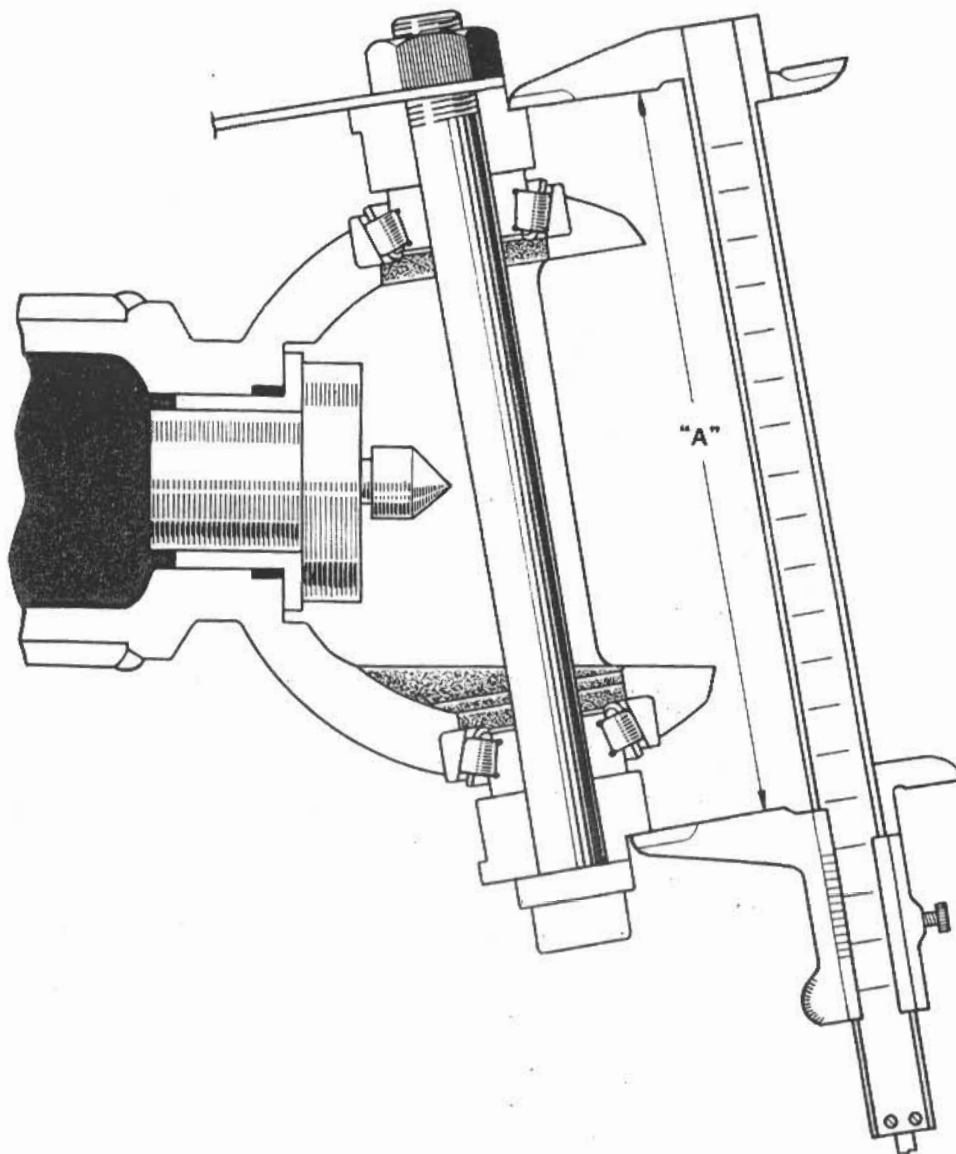


Fig.5-16 Measuring Distance "A"

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f. Measure and record the height "B" of the steering knuckle as illustrated in figure 5-17.

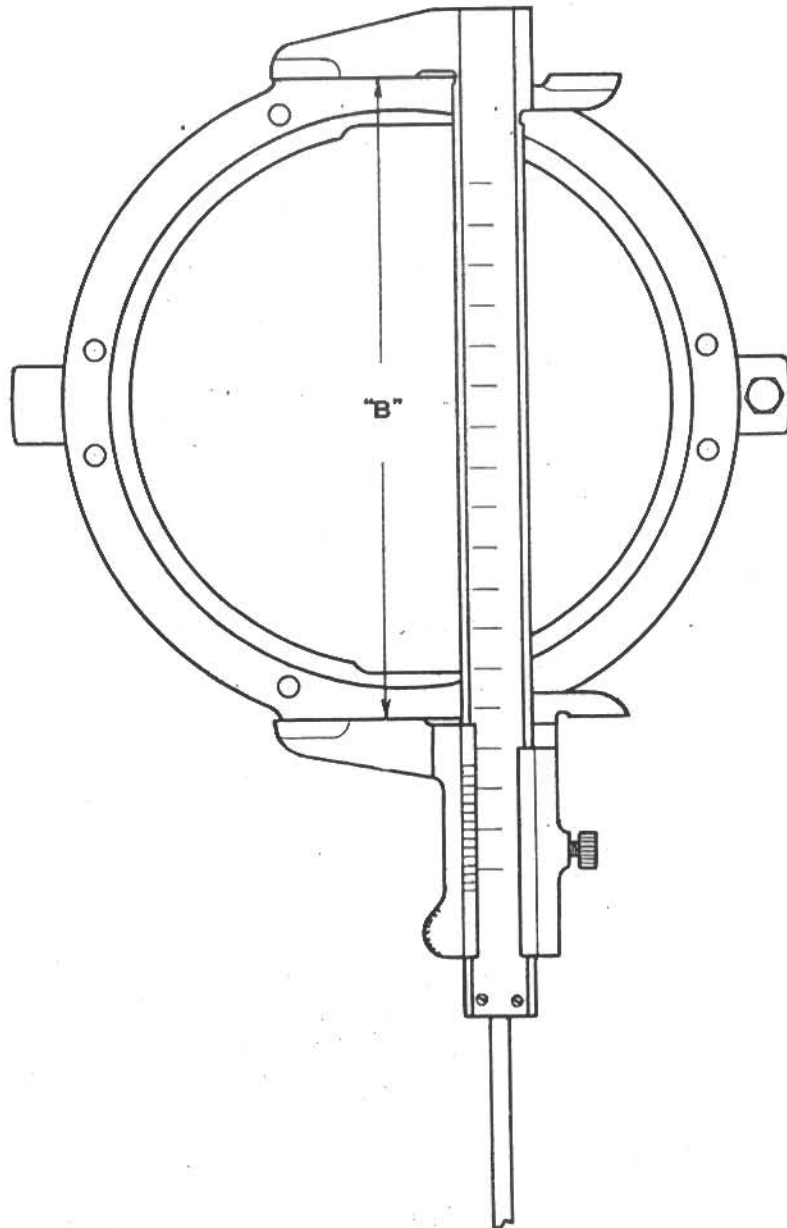


Fig.5-17 Measuring Height of Steering Knuckle

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g. The difference between "A" and "B" is the total adjusting shim thickness that is required to maintain the correct bearing pre-load.

Total adjusting shim thickness "C" equals "A" minus "B".

2. Adjustment of upper and lower adjusting shim thickness.

Perform the following procedure with the Steering Knuckle Centering Gauge 09634-60012 in the assembled condition as per the previous paragraph.

a. Apply thin coat of red-lead onto the middle part of the centering gauge

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rod so that a line can be produced when the centering gauge rod is revolved with respect to the plug.

Now, revolve the centering gauge rod while pressing the plug against the centering gauge rod and adapter against the bushing to produce a clear line around the centering gauge rod as illustrated in figure 5-18.

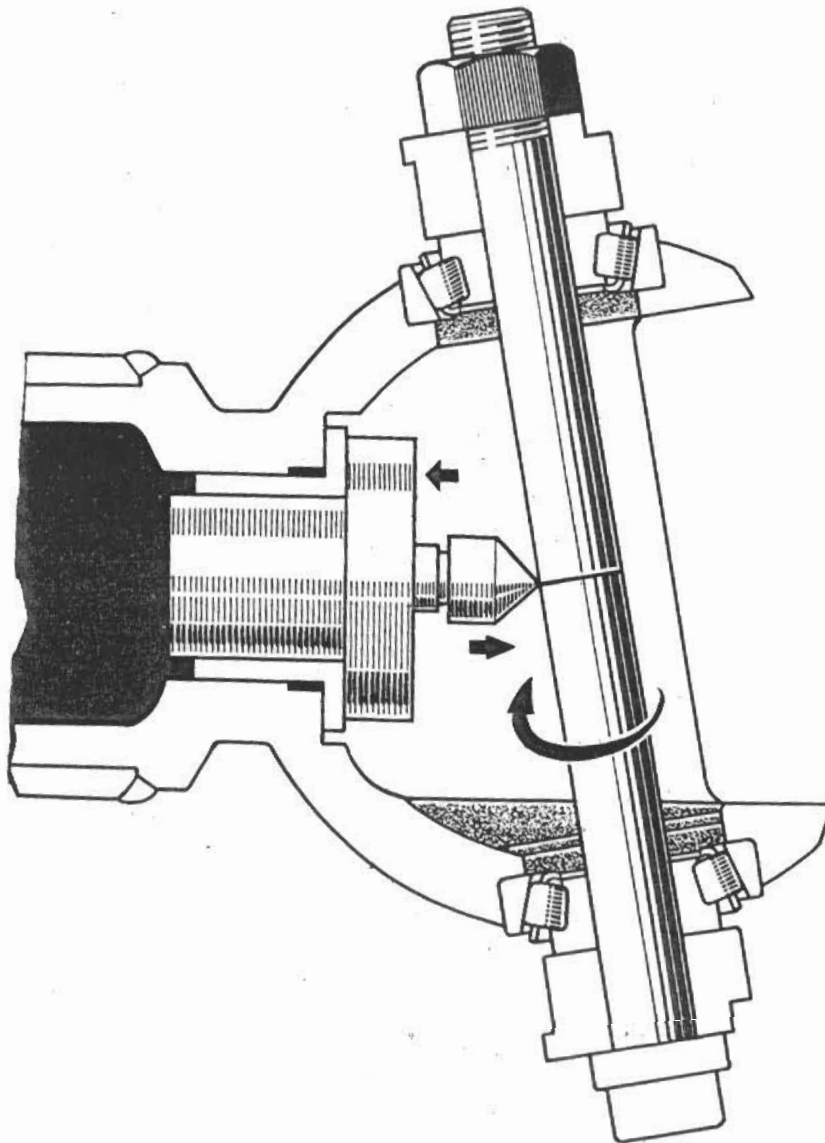


Fig.5-18 Scribing a Line on Centering Gauge Rod

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b. Taking care not to rub off the scribed line on the centering gauge rod, remove the Steering Knuckle Centering Gauge from the axle housing.

c. Install the steering knuckle spindle onto the steering knuckle, and tighten the bolts to 1.5 ~ 2.2 m-kg (11 ~ 16 ft-lb) torque.
Next, install the centering gauge adapter (c) with the plug (d) into the steer-

ing knuckle spindle, and install the centering gauge rod (a) and attachments (b) into the steering knuckle as illustrated in figure 5-19, and tighten the nut (f).

d. Mark another line on the centering gauge rod by revolving the centering gauge rod in the steering knuckle in the same manner as performed in paragraph 2-a.

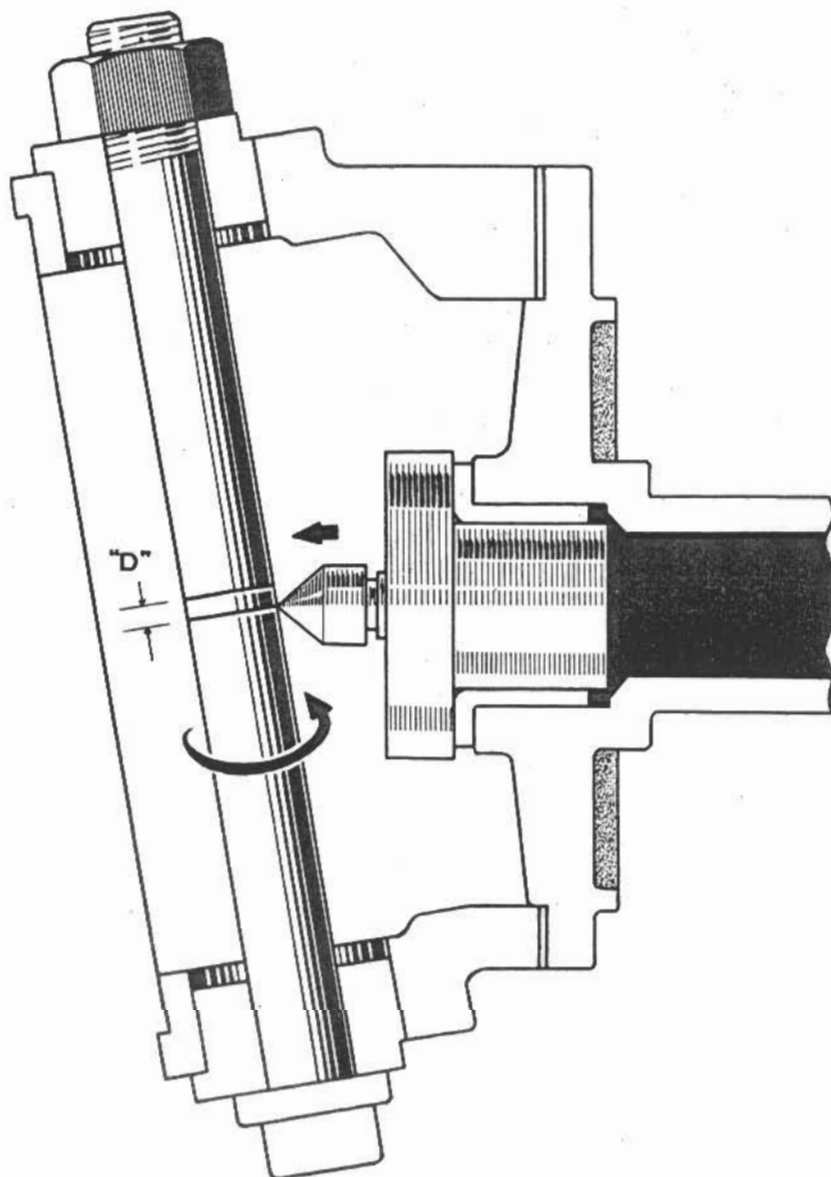


Fig.5-19 Scribing a Line on Centering Gauge Rod

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e. Measure and record the distance "D" between the two scribed lines on the centering gauge rod.

Subtract 3 mm from the distance "D" just obtained.

The difference will be the adjusting shim thickness required for the steering knuckle lower bearing.

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Lower bearing adjusting shim thickness "E" equals "D" minus 3 mm.

f. Steering knuckle upper bearing adjusting shim thickness will be determined by subtracting "E" from the total adjusting shim thickness "C". Upper bearing adjusting shim thickness equal "C" minus "E".

The knuckle bearing adjusting shims are provided as follows.

Part No. 43233-60010 - Thickness: 0.2 mm (0.008")

Part No. 43234-60010 - Thickness: 0.5 mm (0.020")

3. Adjustment of the shaft thrust clearance.

a. To check the axle inner shaft thrust clearance, install the Steering Knuckle Centering Gauge 09634-60012 onto the axle housing as described in the previous paragraph 1, and check the clearance between the plug (d) and the centering gauge rod (a) with a feeler gauge. This clearance is the thrust clearance between the bushing and the axle inner shaft. This clearance should be 0.5 ~ 1.0 mm (0.02 ~ 0.04"). Select and fit the front axle shaft spacer to obtain the specified clearance. The front axle shaft spacers are special service parts, and are provided as follows.

Part No. 04002-20160 - Thickness: 1.0 mm (0.04")

Part No. 04002-20460 - Thickness: 1.5 mm (0.06")

Part No. 04002-20560 - Thickness: 2.0 mm (0.08")

b. To check the outer shaft thrust clearance, install the Steering Knuckle Centering Gauge onto the steering knuckle as described in the previous paragraph 2-c, and check the clearance between the plug (d) and the centering gauge rod (a) with a feeler gauge. This clearance should be also 0.5 ~ 1.0 mm (0.02 ~ 0.04"). If necessary, adjust by selecting the front axle shaft spacer to obtain the specified clearance.

Assembly & Installation

When assembling, the oil seals, gaskets and the lock washers should be replaced.

To provide initial lubrication, apply a thin coating of multipurpose grease on all rotating or sliding portions, and the bearings before installation.

1. Place the steering knuckle oil seal set onto the axle housing.
2. Place the steering knuckle upper and lower bearings onto the bearing cups in the axle housing, then install the steering knuckle.
3. Install the steering knuckle bearing adjusting shims which were determined during the previous adjustment onto the steering knuckle arm, and then install the steering knuckle arm with the adjusting shims

onto the steering knuckle. Next, install the steering knuckle bearing cap and the bearing adjusting shims onto the steering knuckle into the bearing.

4. Insert the dowels into the steering knuckle arm, and the steering knuckle bearing cap, then tighten the retaining nuts to 6 ~ 7.5 m·kg (43 ~ 54 ft·lb) torque.
5. Next, check the bearing pre-load of the steering knuckle. Attach a pull-scale to the end hole of the steering knuckle arm at right angle. The reading of the pull-scale should be 1.8 ~ 2.3 kg (3.9 ~ 5.0 lb). If necessary, re-adjust the bearing pre-load.