Glenn Milley's Steering Box by Ted Spain

Hi Ted,

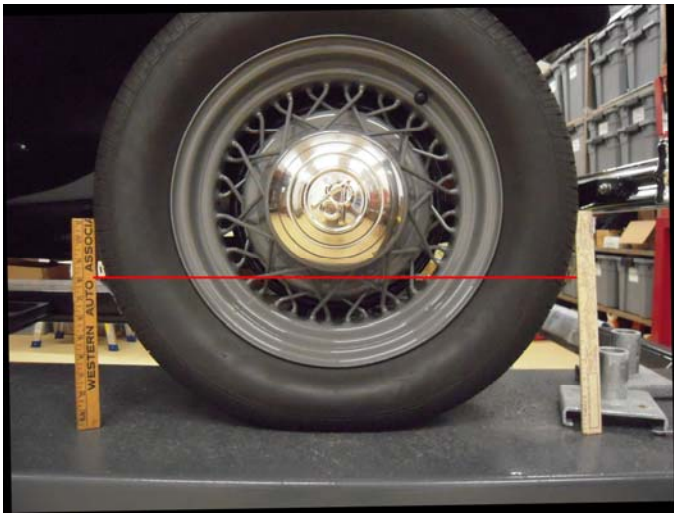
I'm going to pull together all the facts about my steering box in this document so we're both on the same page.

Toe-In Adjustment

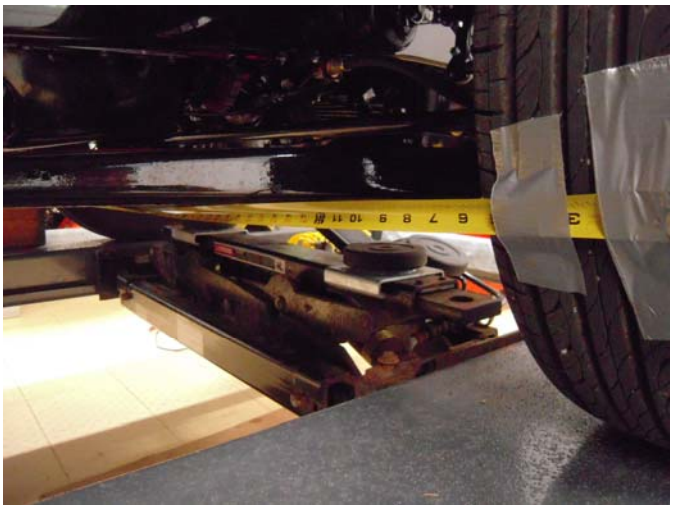
I repeated my adjustment today to confirm that my toe-in is still correct.

- I used the same type of tape measures for this. I taped the ends into an outer tire grove.
- The height of the tapes are the same at 8" above the ground.

Result is the Toe-in is 1/16"







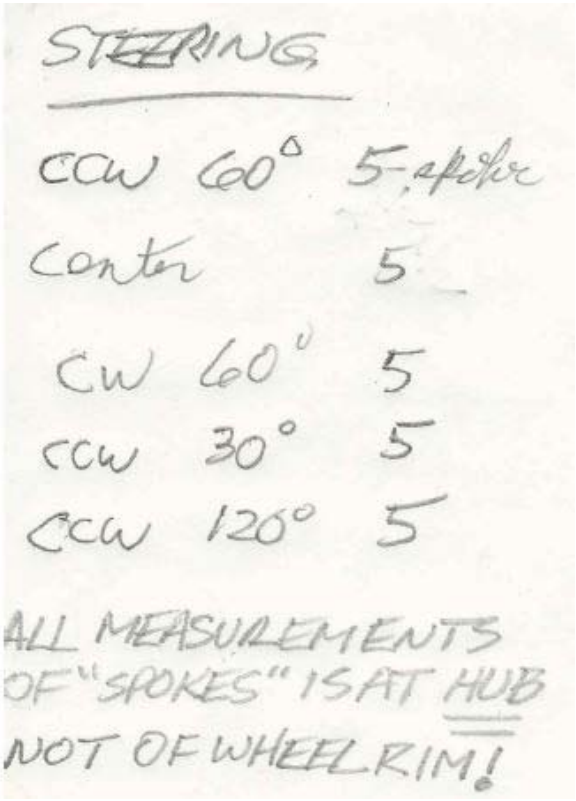


Other Suspension Condition

All rod ends and king pin are either new or have no wear. Not that I had zero problem with steering wheel free movement or “arc float” with my original rebuilt box.

Check for “free movement” at different steering Box Positions

I adjusted the drag link lengths to see if the amount of “free movement” changed with the steering box off of center position. This is the table with my notes:



Conclusion is that the box positions off of center had no impact.

Arc “free movement” of Steering Wheel

The two pictures below show the arc of free movement. There is zero movement of the Pitman arm in this arc.



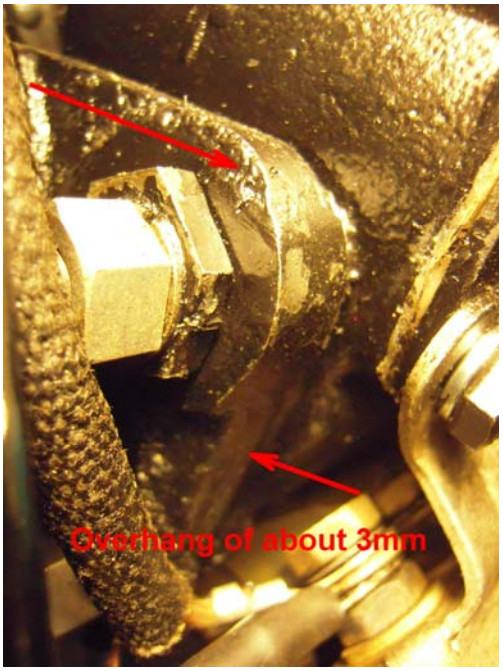


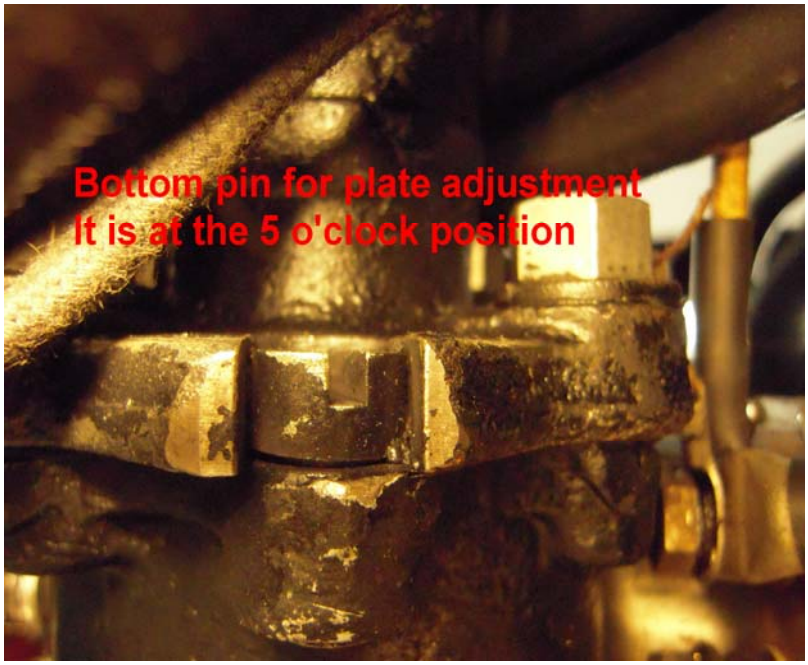
The amount of free movement with no Pitman arm rotation is 110mm!

Maximum allowed is a quarter of this value. As mentioned above, the postion of the box off of center makes zero difference to this free movement.

Adjustment of Box as Delivered

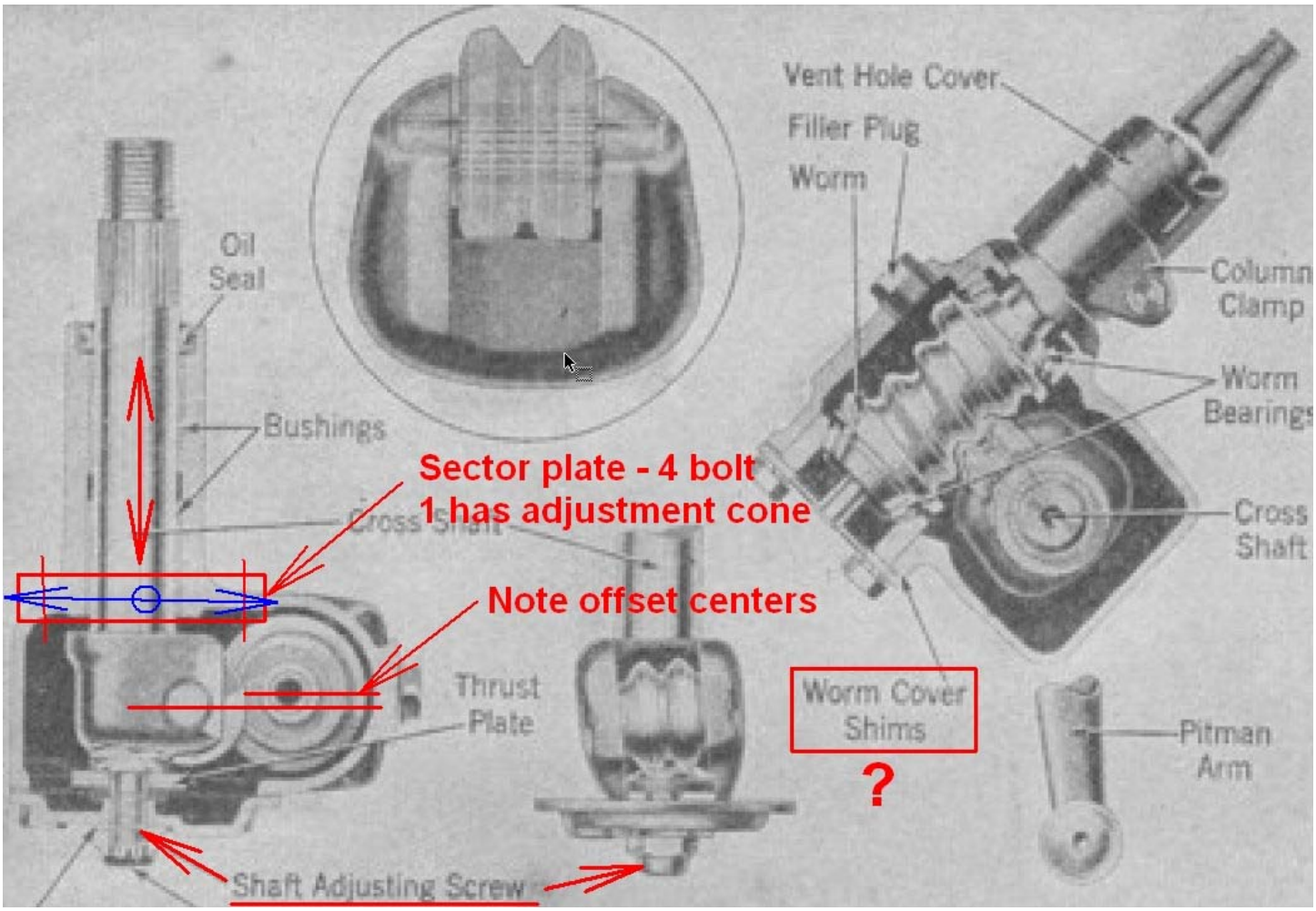
I mentioned that the cone adjsutment of the sector shaft 4-bolt plate is at its extreme. It is positioning the plate to the extreme right or up the worm toward the steering wheel, with an overlap of about 1/8” or 3mm.







Ford/Gemmer model 305 worm and roller type



So how is this box to be adjusted?

- The sector shaft can be pushed in and out of contact with the worm gear by the adjustment bolt on the outside of the box at the end of the sector shaft (see above section, last picture)
- Does the 4-bolt sector housing to main box get adjusted?
    - Moving this 4-bolt plate would push the sector shaft gear into and out of the worm gear but do the shaft bearings prevent this?
    - This movement would tilt the sector shaft as the plate is moved
    - Why is the plate at the extreme right of its possible movement? (see pictures in above section)
- Does the light switch end plate require shims to adjust worm position?

Conclusions?

- Was the steering box adjusted before it was sent?
- Is the machining of the worm gear wrong causing the free steering wheel movement?
- Is the machining wrong such that it can't be adjusted enough, i.e., the 4-bolt plate is at the extreme of adjustment?
- Stock steering box did not have this free slack movement issue
- What next, especially in regard to how this box is to be adjusted now and in the future?

Glenn Milley

9-5-2020