

## **GR-40 Bump Steer System Installation Instructions**

Bump steer is the racer's name for toe-change during suspension travel. You may not know it, but if you have lowered your car, you have a bump steer problem. Offset rack bushings may help, but adjusting bump steer is like adjusting ignition timing, it must be tuned for each car. The Griggs Racing bump steer kit makes it possible for you to tune the bump-steer out of any Mustang.

In addition to a complete set of hand tools, this installation requires a;

- Ford Service Manual or an after-market equivalent
- Drill press and 5/8" drill bit
- Bump steer gauge (available from Griggs Racing) or access to one
- Realignment

Follow the procedures in order and you will not have to spend any time duplicating your effort. Working on automobiles can be dangerous. If you are not a skilled mechanic, you should find one to perform this (and any other) installation. Please recycle all your discarded parts.

- 1) Support chassis with jack stands under rear axle and front frame rails just behind the K-member. Remove all four wheels and rear anti-roll bar. Vehicle must be raised at least 18 inches. Remove front wheels.
- 2) Mark the location of the stock tie rod ends and remove them. (We strongly recommend flushing all power steering fluid out of the system at this time and replacing it with a high-quality synthetic.) Retain stock cotter pins or replace. Tie rod ends should be recycled.
- 3) Remove both front sway bar end links. Remove front brake calipers and hang them out of the way. Remove front rotor/hub assembly. If you are working on a SN-95 Mustang or have installed SN-95 spindles it is not necessary to remove hub.
- 4) Loosen all four control arm mounting bolts. (Do not try to remove.)
- 5) Consult a Ford Service manual prior to attempting to remove the front coil spring. While supporting outer end of control arm with a jack, disconnect ball joint from spindle, and slowly lower the jack and remove stock spring. Be Careful!! Spring is preloaded considerably. Spring can not be removed until control arm is pointed almost straight down.
- 6) Remove spindles and de-grease.
- 7) The spindle steering arm must be modified for the installation of bump steer adjustment kit. Using a drill press and a 5/8" bit drill out tapered hole in steering arm with a 5/8" drill. Drill top to bottom. Although this modification is very simple, Ford's spindles are very hard. If you are not comfortable with performing this modification, take

the spindles to a machine shop. The modification can be performed in just a few minutes and shouldn't cost much.

8) Reinstall spindle on control arm and reinstall strut. If you are going to adjust bump steer yourself, do not reinstall spring at this time. If you are going to take the car to an alignment shop to have the bump steer adjusted, follow your service manual's instructions for reassembling the front suspension at this time.

9) Center rack and pinion by measuring extension of each inner tie rod. Lock in place with vice grips on steering shaft.

10) Support control arm under ball joint and raise control arm until the ball joint is roughly 1" higher than the inner pivot points. Install aluminum tie rod end onto rack noting position of OEM unit you removed. Adjust the new tie rod ends until total toe is approximately zero. To eliminate bump steer, you must adjust the relationship between the tie rod and the control arm so that they remain in phase throughout their range of motion. This does not necessarily mean that the arms will be parallel to each other. Insert the 5/8" bolt supplied in the kit through the steering arm of the spindle from above. Raise the tie rod end until it is roughly parallel to the control arm. This will approximate the correct relationship between the arms at designed ride height. Insert the approximate number of spacers to retain this relationship between the steering arm and control arm and install supplied nylock nut below the spacers. If you do not have access to a bump-steer gauge reassemble the rest of the front suspension according to your service manual and re-torque all fasteners to factory spec. Then proceed immediately to a local chassis shop for final fine-tuning and alignment.

11) If you do have access to a bump steer gauge adjust tie rod end up and down with spacers until there is as close to zero toe change as possible during the first inch of bump travel. Try to retain zero toe change through as much travel as possible. If you can not achieve zero toe change, set the next increment to bump out. Under no circumstances do you want your Mustang to bump in. This can be an enormously time consuming process if you don't think about what you are doing. If you can not visualize the affect of a given change, insert all the spaces and observe the change in toe....this should help you understand how the shims actually affect the bump-curve.

12) When you are satisfied that your adjustments are complete, reset toe-in again, and remove steering lock. Do a final pre-drive inspection. You are ready to go.