BUMP STEER GAUGE INSTRUCTIONS

INTRODUCTION

Bump steer is the toe in or toe out of the front wheels as the suspension goes from normal ride height thru full bump (suspension system moves up) to full droop (suspension system moves down). Measurement is usually limited to 3" up and 3" down from ride height. It is specified either by a graph or by measurements at 1", 2", and 3".

Bump steer affects handling much as setting toe in does. All cars have a certain designed-in pattern of bump steer. Check with your chassis builder for his normal pattern. If you have a factory chassis you'll probably want to try to minimize bump steer as a starting place.

Due to normal manufacturing tolerances the actual bump steer can vary from the designed pattern and should be checked on a new car and occasionally during the life of the car to see if it has changed. Many professional racers even use bump steer as a chassis tuning tool. Again check with your chassis builder.

CHECKING BUMP STEER

First you must determine the position of the suspension system at ride height. This is a starting point as this is where normal toe-in is set. Later you are going to put the car on a ride height block and remove the front wheel and spring.

A) **There are two easy ways to determine the front suspension position: 1. Measure the length of the shock absorber, or 2. Measure the angle of the upper A frame. Choose one and take the measurement with the car at ride height. Also measure the frame-to-ground clearance at this time.**

B) **Make a ride height block from wood (or anything solid) the same as frame-to-ground to place under the frame when you take the front wheel off.**

C) **Put the ride height block under the frame and remove the wheel and spring. Also disconnect the sway bar. Place a hydraulic (or floor) jack under the A frame and raise the suspension to ride height by measuring the shock length or A frame angle as before.**

D) **Bolt the aluminum plate to the hub. If necessary you can drill other holes for your particular car. (After you're done keep the bolts with the set for future use.) Rotate the plate so that the small level shows horizontal.**

E) **Lean the bump steer gauge (tubular frame with dial indicator) against the plate at a slight angle (approx. 15°) so that the upper tube is parallel with the plate and the dial indicator tip and roller bearing contact the plate. Loosen the knurled nobs and adjust the height so the dial indicator tip and roller bearing are next to "0" on the plate scale. Rotate the dial on the dial indicator to "0".**

F) **Using your hydraulic jack move the suspension system until the dial indicator is at the 1" mark. Note which direction the dial indicator moves to see if the wheel toes in or out. *The reading you get on the dial indicator is the actual amount of bump steer.* It's that simple. Record this and go on to 2" and 3". If you want to make a more detailed measurement you can take reading every ¼" or ½" and plot a graph.**

   a. **NOTE: When you are taking measurements the steering must not move. If necessary lock the steering in place. Also the hub and plate must not rotate. If it does turn it back to horizontal using the small level.**

G) **Now go back to 0" and take similar measurements as the suspension system moves down. Repeat this procedure on the other side of the car. Keep the readings as part of your records.**

H) **To adjust bump steer refer to your set up sheet or manual, or there are several good books on the market that describe how to make adjustments. Because suspensions vary widely it is not practical for us to go into detail on actual adjustment procedures.**

I) **When you are done with the adjustments recheck as before.**