

1997-2007 Front Bump Steer Kit

Product # PM-499

Installation Instructions

Any suspension work on your car should be left to a professional. Bump steer is a precise adjustment that should be left to a qualified mechanic that understands steering geometry. This kit will allow the adjustment of any bump steer that may be present in your car.

Definition: Bump steer is the change of toe (in or out) in the front suspension alignment as the suspension moves up and down due to road surface irregularities or when the car is turning. As your ball joint moves through an arc determined by the lower control arm, your tie rod must also move in an arc since it too is attached to the spindle. If these arcs are not the same, then the tie rod will cause the wheel to turn in or out, depending on how much bump steer is inherent.

Almost all cars come from the factory with some bump steer inherent in the suspension. As you are measuring and adjusting your bump steer, remember that you never want the bump steer to cause toe-in. Either zero, or a slight toe-out is desirable.

All bump steer measurement should be made using a bump steer gauge. These are available from various manufactures and can be relatively inexpensive. Zip Products does not sell bump steer gauges. Additionally, you can achieve the same results on your own, without the gauge if you are willing to put the time and effort into your project. Essentially, you need to measure the toe-in or toe-out of your car as you are taking the bump steer measurements. This can be accomplished in many ways. The following instructions do not specify how you take the measurements, but give you guidelines on how to measure and change the bump steer of your car.

Install the bump steer kit on the tie rods. This kit will replace the factory tie rod ends. Attempt to duplicate the same length of the factory tie rod so that you have a starting point that is close to factory.

1. Set the car at ride height on a flat, level surface. Insure that tire pressures are correct on all 4 corners.
2. Your car must already be aligned (caster, camber, and toe must all be set to desired measurements) after installing the bump steer kit.
3. Steering should be centered and locked. It can't move during measurement.

4. Measure ride height from the bottom of the ball joint to the floor, and also from a point on the frame to the floor. Record these measurements.

5. Unbolt the sway bar and remove the front spring.

6. Remove the tire or tires, and return the car to the measurements you recorded for both the frame to ground and the ball joint to ground measurements. Use a jack to raise or lower the ball joint location.

7. Attach your bump steer gauge to the hub of the car so that you can easily read that change in toe as the suspension travels through compression and rebound.

8. Use the jack to cycle the suspension 3" up (compression) and 3" down (rebound). Take a toe measurement at every inch of travel. Record these measurements and adjust the shims and tie rod length as necessary:

- Problem 1. Toes out in compression and in on rebound all in one direction.

Solution: Decrease shims on outer tie rod (raise the tie rod end).

- Problem 2. Toes in on compression and out in rebound all in one direction.

Solution: More shims at outer tie rod (lower the tie rod end).

- Problem 3. Always toes in both compression and rebound.

Solution: Lengthen the tie rod, as it is too short (turning the adjusting sleeve out).

- Problem 4. Always toe out on compression and rebound.

Solution: Shorten tie rod as it is too long (turn the adjusting sleeve in).

- Problem 5. Toes out on compression, then in on rebound and then starts back towards out with more rebound travel.

Solution: Less shims at outer tie rod and shorten tie rod.

- Problem 6. Toes in on compression, then moves out on rebound and then starts back towards in with more rebound travel.

Solution: More shims at outer tie rod and lengthen tie rod.

Again, you should have as little bump steer as possible. If any is present it should be bump out. Bumping in on compression can cause the car to be unstable. However, too much bump out will slow the car down as the tires slide on the road surface.

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