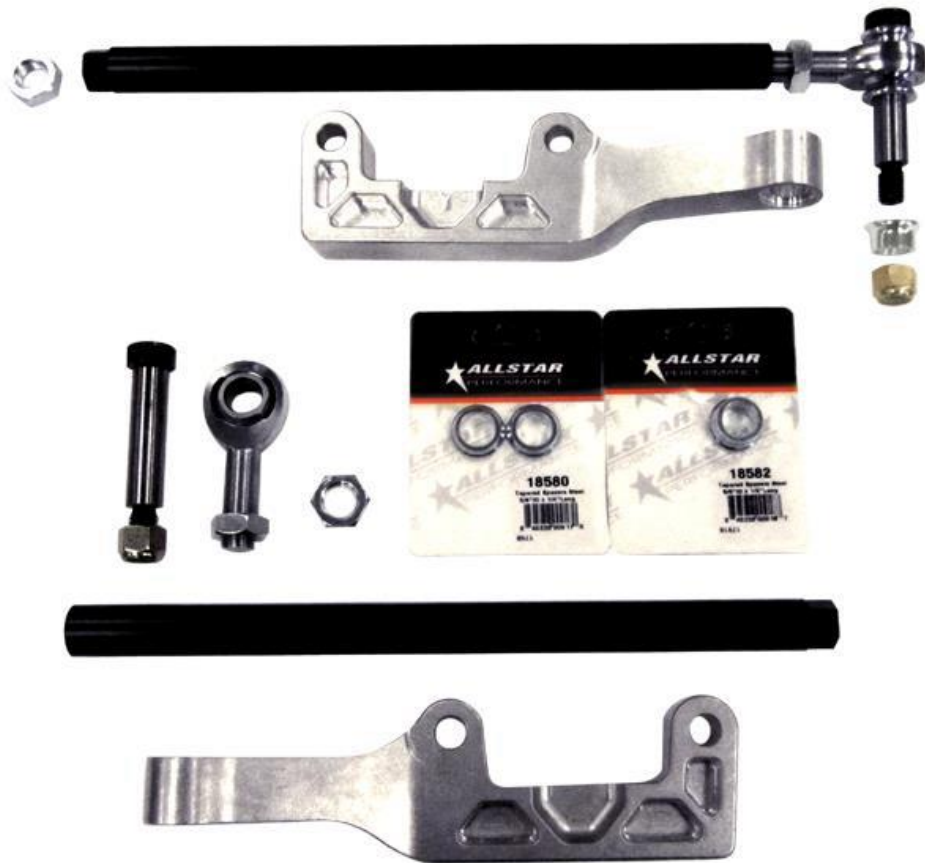


Instructional Guide

*Enhanced Ackermann and Bump Steer Adjustment Kit
77-87 G-Body*



Speedtech
PERFORMANCE

CHASSIS - SUSPENSION - PRO TOURING - AUTOCROSS - DRAG RACING - CUSTOM BUILDS

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Figure 1 1987 Grand National, features our Ackermann and Bump Steer kit, Blake Foster

Congratulations on the purchase of your new Speedtech Performance Enhanced Ackermann and Bump steer Adjustment Kit. Use only approved and appropriately rated jack and jack stands, be sure to take all safety precautions required to do the job safely and correctly. If you are unsure, seek the assistance of a highly qualified workshop to assist you.

Read and understand all instructions thoroughly before you begin. For the most part, assembly and set up of your new Enhanced Ackermann and Bump steer Adjustment Kit can be done in a home garage with hand tools and basic welding equipment.

We enjoy seeing the progress our customers are making as they work through their builds so join the Team Speedtech group on Facebook and share your pictures and your story.

From everyone at Speedtech Performance we send you all best wishes for your project!

Installation Guide

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1.0 GENERAL INFORMATION

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1.1 This Guide

Thank you for purchasing your new Speedtech Performance Enhanced Ackermann and Bump steer Adjustment Kit. These instructions outline the Enhanced Ackermann and Bump steer Adjustment Kit that will be installed with the Speedtech Performance forged tall spindle.

1.2 Tools

Installation of the Speedtech Performance Enhanced Ackermann and Bump steer Adjustment Kit can be done on the floor with simple hand tools.

Additional things to have before you start:

- Wrench
- Drill / Bits

2.0 CHECK IN PARTS AND HARDWARE

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2.1 Checking in the Order

Best practice will be to check in your order as soon as possible after receiving the order. To check in the order we have provided tables, these can be used as check lists for your order.

2.2 Check in Tables

X	#	Description	Size
	2	Billet Long Tie Rod Sleeves	
	2	Heim Joints	
	2	Shoulder Bolts	5/8"
	2	Nylock Nuts	
	2	RHT Jam Nuts	
	2	LHT Jam Nuts	
	1	Pkg. Tall Shims	5/8"
	1	Pkg. Short Shims	5/8"

Note: There may be some extra hardware that was packaged that is not accounted for in the check list. The hardware kits are made to fit multiple products and the excess is from that process.

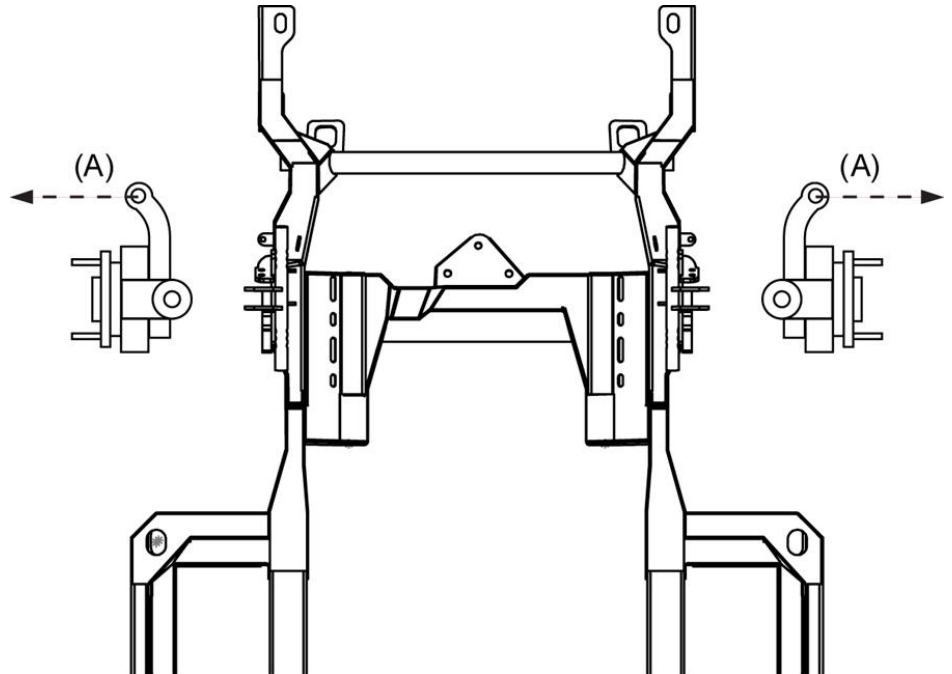
3.0 GETTING STARTED / INSTALLATION

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3.1 LEVELING AND SUPPORT

The vehicle should be on a level surface before you start.

Jack up and properly support and level the vehicle's frame. The Enhanced Ackermann and Bump steer Adjustment Kit gets installed AFTER your Speedtech Performance forged tall spindle. (see spindle instructions)



3.2 STEERING ARMS / LINKAGE REMOVAL

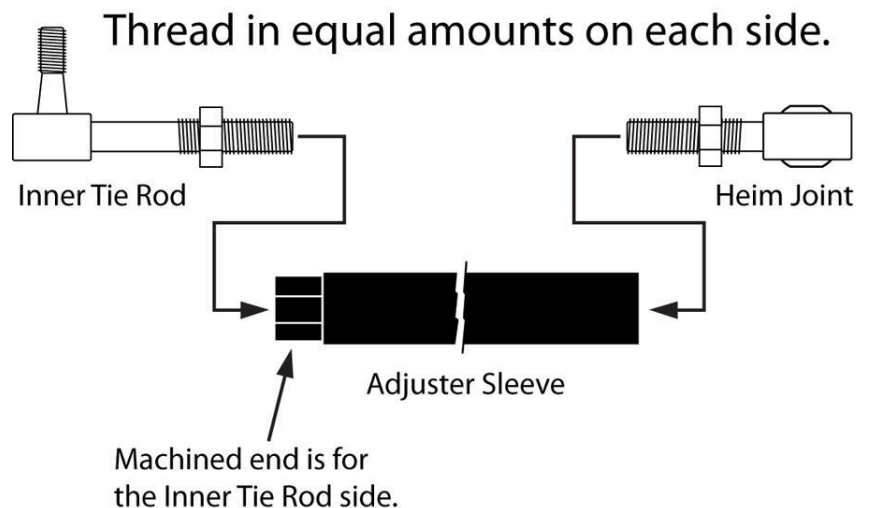
Install steering arms with the tie rod ends pointing towards the outside of the car (A). Remove the old outer tie rods and adjusting sleeves from the steering linkage. Do not remove the inner tie rods from the center link unless they need to be replaced.

3.3 JAM NUTS

Thread a jam nut several threads onto both the heim joint and the inner tie rod, paying close attention to using the correct nut thread direction in the appropriate corresponding locations.

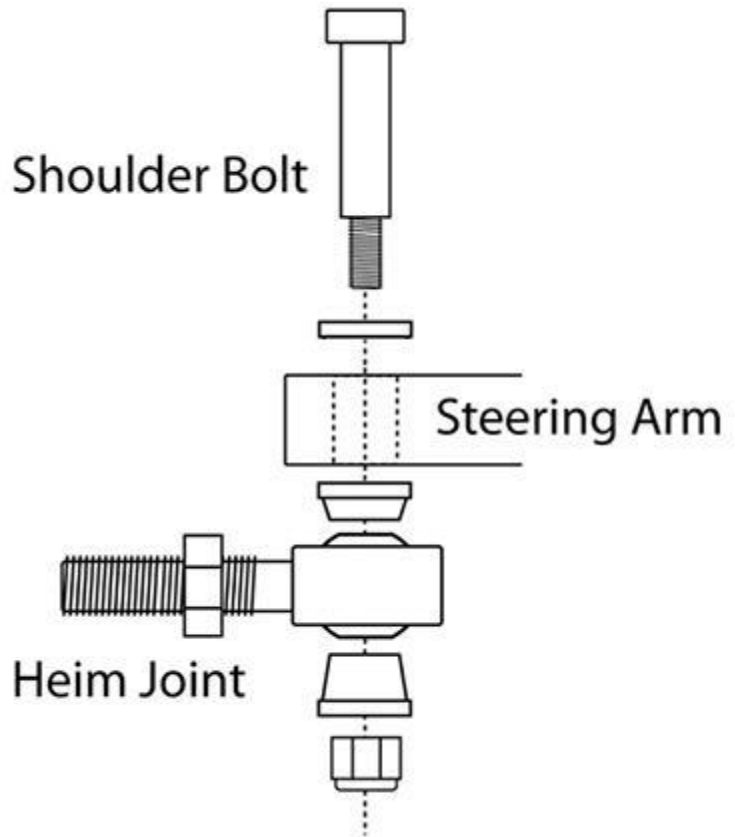
3.4 PREPPING SLEEVES

Apply anti-seize to the threads on both ends of the adjuster sleeves. Thread the machined end of one adjuster sleeve (see diagram below) a couple of threads onto one inner tie rod. Thread one heim joint the same number of threads into the other end of the adjuster. Holding the heim joint steady use the other hand to rotate the adjuster sleeve so that it simultaneously tightens down both sides an equal amount until it lines up with the spindle steering arm with the wheel pointed straight forward.



3.5 SHOULDER BOLT

Install the shims, shoulder bolt and nylock nut as seen in the diagram below. With the suspension mocked up *at ride height*, if necessary, change the positioning of the shims to have the tie rod assembly close to parallel with the ground. This will give you a good base bump steer setting to start with. Finger tighten the nylock nut, do not fully tighten it at this point.



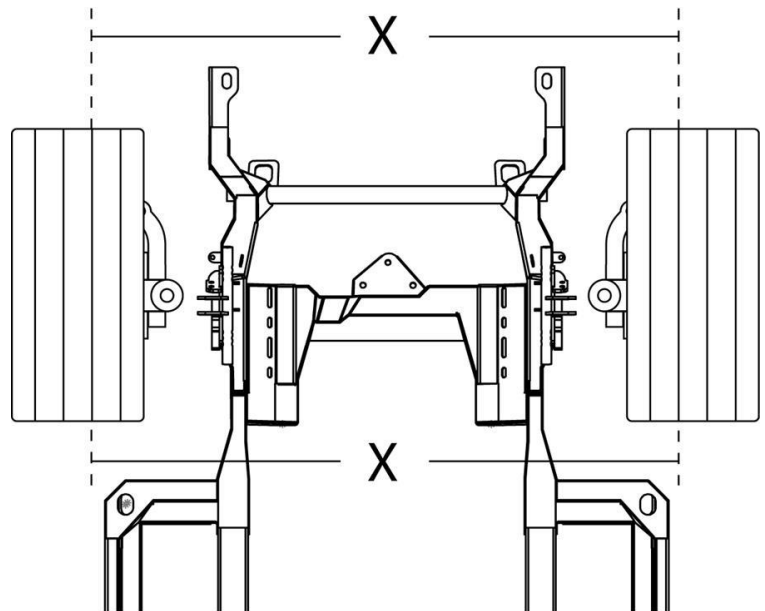
3.6 REPEAT

Repeat steps 3.2-3.5 on the other side of the car.

4.0 ALIGNMENT / SET UP

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Using a center point on the frame as a reference align the middle of the center-link to the center of the vehicle. Now with the suspension *at ride height* and the wheels and tires bolted in place adjust each side's toe setting by turning the adjuster sleeves equally either forward or backward until the tires are facing forward. You can get the toe setting fairly close by adjusting the suspension until measuring the distance between the same points on the front side of each tire is equal to the distance between the same points on the rear side of each tire, see (X) in the diagram below. Adjust as needed until both front and rear measurements are near the same. When finished snug all four jam nuts finger tight. This will be close enough to drive the car onto a trailer to take to a competent alignment shop. *Do not street drive the car in this condition* other than to load it on a trailer.



4.1 ALIGNMENT

Bring the car to a reputable alignment shop that is familiar with performance alignment settings and how they all correlate with each other, including but not limited to caster, camber gain, toe settings for specific types of driving/ racing, bump steer adjustment, etc.

When the alignment is finalized the alignment technician will then tighten the tie rod adjuster jam nuts.

Daily Driving, Street Performance Specifications

Driver Side	Passenger Side
4 Degrees positive Caster	4 ½ Degrees positive Caster
0 to ½ Degree negative Camber	0 to ½ Degree negative Camber
3/ 32 Total Toe-in	3/ 32 Total Toe-in

Aggressive Track Alignment Specifications

Driver Side	Passenger Side
5 ½ Degrees positive Caster	6 Degrees positive Caster
½ to 1 Degree negative Camber	½ to 1 Degree negative Camber
3/ 32 Total Toe-in	3/ 32 Total Toe-in

Original Alignment Specifications

****For reference purposes only. Do Not use these specs.**

Driver Side	Passenger Side
½ Degree positive Caster	½ Degree positive Caster
¼ to ½ Degree negative Camber	¼ to ½ Degree negative Camber
1/8 Total Toe-in	1/8 Total Toe-in

4.2 SETTING BUMP STEER

With all other alignment specs set you can check and adjust your bump steer. First measure and record the distance from the center of the hub vertically to the fender, this will give you your ride height wheel position. Raise the car off the ground, support on jack stands and remove one wheel. Using a floor jack raise the suspension to ride height, matching the measurement from the hub center to the fender. Using a bump steer gauge find measurements at 2-3" of compression and 2-3" of rebound. If bump steer is more than about .015 (15 thousandths), return the suspension to ride height. Disconnect and remove the shoulder bolt at the tie rod heim joint and rearrange the spacers as necessary, moving the heim joint either closer to or further from the steering arm. Reassemble and re-measure. Additional shims not included in the kit may be required to find the least amount of bump steer. Torque the nylock nut to 40 ft./lbs when finished. Be sure there are enough shims so that the nut makes contact with and tightens the rest of the assembly, and not too many shims so that at least 1-2 threads are showing beyond the nut when finally torqued down.

- **Note:**
You'll want to avoid static toe in and bump out. If your toe is set to toe in, then any amount of bump must be bump in. The same rule applies to toe out (autocross setting), any bump must be bump out.
- After bump steer is in range recheck the other alignment specs.
- Recheck the torque on all fasteners after 100 miles.

5.0 Congratulations

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Congratulations on completing your project, we know you will get many years of enjoyment from your project. Please join the group [Team Speedtech](#) on Facebook. Team Speedtech is a community of like-minded individuals using Speedtech Performance products. The Group's members include customers, our dealers and factory employees - each with a passion for Pro Touring muscle cars. You can ask questions and get advice from the group members as well as share your experience. Within the group we enjoy seeing the videos and pictures during the progress of your projects so post up. We also encourage you to share pictures and videos of your finished projects out on the road, at the show & shine, on track or however you get enjoyment from your ride, we want to see it!

Thank you for choosing Speedtech Performance! We know you have a choice, and we appreciate that you entrust us with your chassis and suspension needs for you custom muscle cars.

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