



Sway bar link on my old Safari



<http://poca.com/index.php/cl/ch/west/tpoc>

February 2011

**Meeting location has been changed – see below.** Future location will be firmed after the next meeting.

**Suspension Adjustments** January 4, 2009 rev 10/6/11 with contributions from Jack deRyke.

Handling is a major objective for our cars and yet the setup and engineering have been a mystery for me. I love the crisp handling of the European offerings and hate the lazy one of my 1957 Chevy. The following is offered in the hopes of simplifying what you can do as a means of changing the response of your car.

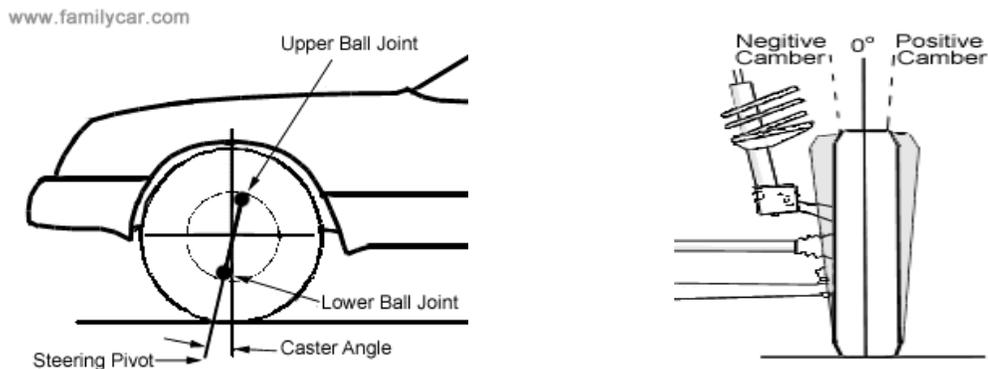
But first, understand that “understeer” is when you have more steering into the turn than the front wheels are actually going. The angle of the wheel is sharper (more) than the direction of the car. Simply, the tires are slipping through the turn. This action is sometimes called “push” by those NASCAR drivers. American engineers build in this feature to ensure that the public is not surprised by an overly responsive car.

Active drivers like more positive feedback along with faster translation of steering inputs. Increasing oversteer brings the car around quicker. It is marked by less steering angle than the car’s direction. The rear here has a tendency to “come around”. You need really quick hands to recover from too much car rotation. Rally drivers induce this by applying the rear brakes in turns. You can also do this in your Pantera by lifting the throttle suddenly in the middle of a turn causing an immediate exit of the track.

<i>To Decrease Understeer</i>	<i>To Decrease Oversteer</i>	<i>Adjustment</i>
Higher	Lower	Front tire pressure
Lower	Higher	Rear tire pressure
Larger	Smaller	Front tire section
Smaller	Larger	Rear tire section
More negative	More positive	Front wheel camber
More positive	More negative	Rear wheel camber
Toe-out	Toe-in	Front toe
Toe-out	Toe-in	Rear toe
More positive	More negative	Front caster
Soften	Stiffen	Front springs
Stiffen	Soften	Rear springs
Smaller	Larger	Front anti-sway bar
Larger	Smaller	Rear anti-sway bar

Caster tilted forward of front wheel king pins or spindle is negative. Rearward is positive caster thus the top leans backwards. Straight axles on early Fords were 4.5 to 9 degrees positive while Chevy used 2.5 to 3.5 degrees, and Mopars used 1 to 3 degrees positive (layback). Positive caster yields heavy steering and improves

straight line stability. If the caster is different from side to side, the vehicle will pull to the side with the less positive caster. If the caster is equal but too negative, the steering will be light, the vehicle will wander and be difficult to keep in a straight line. If the caster is equal but too positive, the steering will be heavy and the steering wheel may kick when you hit a bump.



Camber is the tilt on the wheel from vertical. Positive is when the top of the tire leans out. This is often done in very early cars with ultra skinny tires. Such cars call for positive settings ranging from .25 to 1.5 degrees. Two degrees positive like on my MGTD wears the outside edge of the tire and make the car twitchy. Negative leans in at the top. Radials have the most force with a trace of negative of .5 to 1 degree. Slightly more (1 to 2 negative degrees) for a very aggressive cornering style is often used. This makes the tire patch flat when the body rolls in the turn adding to grip. Some drift cars use even more negative camber. They seem to have absolutely no concern over tire wear.

Toe-in measures the difference between the front and rear of the tire's sidewalls. This setting exerts a leverage that keeps the front wheels straight down the road and helps the wheel to return to center. Many cars set it at zero. Radials are usually set at 1/16 to 1/8 inch as norm. Wear on the tire tells all. If sharp edges (saw-tooth) are felt while running a finger across the tread from outside to in, more toe-in is needed. If edges are felt going inside to out, some toe-out is needed.

Rear Sway Bars can be adjusted by reading the corner weights. Loading one side sets preload heavier on that side via a longer linkage. Shorter linkage lightens that side and allows better corner weight loads. Shoot for weights within 20 pounds side to side. I've placed a large bar on my 57 Chevy to control body roll, found that it worked very well but did increase the understeer. Now I'll fashion a rear bar to bring it back. One thing at a time!

All of this applies to the rear (IRS) on our Panteras. Corvettes need the same attention on the late model cars too. Thus, you can have the rear help bring the car around using the above table. It's normal for us to focus on the fronts but start to think in terms of controlling both.

If your car has them (DeTomasos do not), the Pitman arm must be adjusted at the exact center of the steering box and the drag link must also be at exactly 90 angle to the arm. Variations will cause the steering response to be different right versus left.

**Willow Springs** is the place to test both your car and your skills. See the schedule below for contact info. It is usually held early each March and November.

**Membership Directory** is found on-line at [POCA.COM](http://POCA.COM) in the Club tab, then select My Chapter. You must be signed in to see this screen so please do so. It is a convenient way to also reach your fellow POCA members. Confirm the information posted there and send updates to Judy since the POCA membership file is its source.

**POCA Membership** is offered by Judy McCartney at [jpoca2@hotmail.com](mailto:jpoca2@hotmail.com). Contact her there and be sure to say which chapter you'd like to join --- TPOC jumps to mind. She has a flyer outlining the benefits of membership in this worldwide organization.

**Reminders:** from [rkunishige@hotmail.com](mailto:rkunishige@hotmail.com). Everyone with an interest in DeTomaso cars is always welcome.

Oct 12 **TPOC Mtg 7:30pm Original Mikes, 100 So. Main St., Santa Ana.**

Nov **Willow Springs Open Track** days is where we mix it up with Porsche and F cars at Willow Springs Raceway in Rosamond, California just north of Lancaster. Here you can run your car regardless of make or model at speeds on a closed course known worldwide. Big bore machines of the CanAm series were right at home here so our Panteras are well suited with their big torque engines to power out of the high speed turns and onto the long straights. Just contact Jim Saxton, long time TPOC member, at 626 285-2515 [Jim@westcoastracinginc.com](mailto:Jim@westcoastracinginc.com) for details and an application. An optional performance seminar is offered for personal instruction including how to make setup changes to your car like tire pressure, shock and spring adjustments.

Nov 9 **TPOC Mtg 7pm Zito's Bar & Grill** 17320 17th St, Tustin, CA 92780 (714) 730-0003 east of hwy 55 on 17<sup>th</sup>.??

Dec ? **Christmas Party** at Foxfire once again. Contact Bob Singer for your tickets.

Dec ? **Gondola Tour** - Contact Bob Singer for your tickets.

**Long Beach Swap Meet:** Oct 9 Nov 6 Nov 27 Dec 11 @ 8am at Veterans' Stadium.