SOUTHERN OREGON CORVETTE ASSOCIATION, LLC
WWW.SOVETTE.COM
P.O. Box 865 • Medford, Oregon 97501
501(c) (7) Non-Profit Organization • Federal Tax I.D. #91-1819589

Newsletter
March 2019

Elected Officers

President:	Ron Howard
Vice-President:	David Allen
Secretary:	Paul Mitchell
Treasurer:	Carol Misner
Sergeant-at-Arms:	Patrick Smith
Membership:	Robin Miranda
Past President (2018):	Ron Howard

Appointed Positions

Sunshine:	Sandee Anderson
Activities:	David Allen
Event Reminder:	Pat Dobson
Membership:	Robin Miranda
Internet Site:	Sharon Hook-Martino, Cathy York
Parade Coordinator:	Sheron Leigh, Dora Surbrook-Moore
Natl Corvette Museum:	Len Atlas
Historian:	Group Effort
Photographer:	Group Effort

April Birthdays

12	Kellie Vancour	21	Patty Howard
14	Carol Reynolds	21	Bill Martino
18	Richard Maradie	27	Sivo Bignoti
19	Rob Hill	28	Ron Cherry

April Anniversaries

Richard & Arlene Maradie
Frank & Robin Miranda
Len & Marga Atlas

SOCA Logo Apparel

Contact: Ron Howard

Next Club Social

March 16: 4 Daughters Irish Pub & Grill (upstairs), 126 W. Main St., Medford, 6:00 p.m.

Please RSVP to Pat Dobson at:

pdobson0503@icloud.com **or (541) 664-4506**

Why Join SOCA?

- **Promote *esprit de corps* among Corvette enthusiasts.**
- **Create interest in the Corvette as a true dual-purpose sports car.**
- **Provide a means of technical information and service to members.**
- **Encourage dealer and manufacturer cooperation.**
- **Organize and promote events of a social nature and provide social gatherings for enthusiasts with common interest.**
- **Sponsor or participate in activities to benefit the community through recognized charities as selected by the members of the Association.**

Upcoming Meetings

General Membership Meeting, April 3, 2019, 7:00 p.m.
Rogue River Community Center, 132 Broadway St., Rogue River

Visitors are always welcome!

Could a new mid-engine C8 Corvette be in your future? This one was spotted wearing camouflage body wrap to confuse digital cameras and hide the body style details, but there was no way to disguise the air scoops immediately behind the passenger doors! Who will be the first SOCA club member to own one of these?

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2019 Southern Oregon Corvette Association (SOCA) Events

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Club meeting (Wed.)	3	1	5	3	7	4	2	6	4

MARCH

Social	16 – 4 Daughters Irish Pub & Grill (upstairs), 126 W. Main St., Medford, 6:00 p.m.

APRIL

Parade	13 – Pear Blossom Parade, Medford
After Parade	13 – Lunch after parade at Roadhouse Grill, 2699 W. Main St., Medford, time TBA
Social	27* – The Point Pub & Grill (upstairs), 311 E. Pine St., Central Point, 6:00 p.m., bring pool cues * 4th Saturday of April

MAY

Parade	4 – Merlin Parade, details to be announced (TBA)
Social	18 – Bella Union Restaurant (upstairs), 170 W. California St., Jacksonville, 6:00 p.m.
Parade	25 – Boatnik Parade, details TBA

JUNE

Social	15 – Wolf Creek Inn & Tavern (upstairs), 100 Front St., Wolf Creek, time TBA
Parade	22 – Rooster Crow Parade, details TBA

JULY

Parade	4 – Eagle Point Parade, details TBA
Corvette Weekend	12 to 14 – SOCA 2019 **Corvette Weekend**, fundraiser for “Candlelighters For Children With Cancer” (and the July Social)

AUGUST

Social	17 – Potluck gathering at the Peterson’s home, details TBA.
PNW & NCM Caravan	*21 – Depart Grants Pass for the Pacific Northwest Caravan to the 25th National Corvette Museum Caravan in Bowling Green, Kentucky*

SEPTEMBER

NCM Caravan	*8 – National Corvette Museum Caravan drivers return (approximate date)*
Sigel Show & Shine	14 – Jim Sigel Show & Shine, details TBA
September Social	21 – The Point Pub & Grill (upstairs), 311 E. Pine St., Central Point, 6:00 p.m., bring pool cues

OCTOBER

October Social	19 – Si Casa Flores restaurant, 202 NE Beacon Dr., Grants Pass

NOVEMBER

Daylight Savings	*3 – DST ends*
November Social	16 – location and details TBA
Thanksgiving	28 – Thanksgiving holiday

DECEMBER

Parade	7 – Grants Pass Christmas Parade, details TBA
Social	15 – SOCA Christmas Party, Grants Pass Golf Club, 230 Espey Rd., Grants Pass, details TBA

For additional events, information and links … see the SOCA website “Events Page:” https://www.sovette.com/events

Techin & Toolin

Anti-Sway Bars: A Primer - By Brian Ferrari - July 19, 2004

How do sway bars work, and how can you use them to tune your car's suspension? Most performance people know that stiffer rear sway bars reduce the understeering tendencies of a vehicle, but if you ask them exactly why this is they generally draw a blank. Usually they know the results, but not the reasons behind chassis tuning. This article is intended to answer those questions as well as give readers a better understanding of what goes on in your suspension when you take a corner. First, let's get an understanding of what lateral weight transfer is, because this will help you understand exactly how sway bars work to tune the balance of the chassis.

Lateral weight transfer is a function of three things:

- Overall weight of car
- Height of the Cg (center of gravity)
- Track width (this is the distance between the vertical centerlines of each tire on an axle, and many times track width is different on each axle)

So the first thing to notice here is that *spring rate IS NOT a primary determinant in how much weight is transferred laterally on a car for a given amount of steering input*. This is something many people have a hard time swallowing, but nevertheless it is true. All the springs primarily do is determine how much the suspension will compress or expand due to this weight transfer.

Body Roll - One thing that is really important to understand is the difference between *body roll* and *weight transfer*. Although weight transfer is not a function of suspension setup, body roll very much is. Basically, how much the body rolls when going into a corner is originally a function of suspension design, and it only resisted through spring rates and anti-sway bars. This revolves around the concepts of suspension roll centers and the roll axis, which are beyond the scope of this article but important to just be basically aware of. So remember that *body roll and weight transfer are not directly related*, you can have weight transfer without body roll if things are set up just so.

So why is body roll bad? Two reasons:

#1 - it screws up the camber angle of the tires to the road, plus throws off other suspension settings
#2 - it unsettles the driver

Next, you need to know that the principal way you control body roll is through spring rates. And here's where we encounter the problem of not being able to change the static spring rates between cornering maneuvers and just going straight. To show a quick example of this: say the amount of body roll during a corner is 10 degrees for a spring rate of 500 lbs. If you wanted to halve this amount of roll, you would need to roughly double the spring rate to accomplish it. Now we already know that limiting body roll can improve handling (depending on circumstances and suspension setup), but running a spring that stiff will cause the car to be so bouncy that the tire will rarely be in good contact with the ground, unless the road is perfectly smooth. So *how can we selectively increase spring rates only under cornering* so that our straight-line stability and tire-to-road contact is not compromised by really stiff springs? The sway bar is the answer.

Now it should be stated here what sway bars essentially do. What a sway bar does is counteract the action of body roll during cornering by transferring spring rate from the inside wheel to the outside wheel in a corner. This means that you don't actually get any added spring rate; *you just subtract it from one side and add it to the other*. This has the ultimate effect of transferring load from the inside tire to the outside, which has the visual effect of compressing the suspension on the inside of the turn and expanding the suspension on the outside of the turn (thus limiting body roll). This is good mainly because it smoothes the speed of weight transfer during quick transitions and also limits the camber change experienced at the corners of the car through suspension travel. And of course, using this concept one can *dial in the amount of total loading on the outside tire by varying the effectiveness of the sway bar* (stiffer bars equal more transfer). And the beauty of all this is that it mostly only occurs during cornering, so our straight line spring rates are not affected. So hopefully now you understand this concept. This is the most important part though, so if anything is still fuzzy read this again until you get it. Also, here's an example of how this works:

For this example we will use a sway bar with a roll stiffness of 250 lbs.

Left front static load:	1000 lbs.
Right front static load:	1000 lbs.

- Lateral weight transfer in a right hand turn

Left front:	+ 500 lbs.
Right front:	**–** 500 lbs.
Total weight transfer:	1000 lbs.

- Load transfer of sway bar (which is 250 lbs.):

Left front:	+ 250 lbs.
Right front:	**–** 250 lbs.
Total weight transfer:	1000 lbs.

- Total effective cornering load for this example:

Left front:	1000 + 750 = 1750 lbs.
Right front:	1000 **–** 750 = 250 lbs.

- Without sway bar

Left front:	1000 + 500 = 1500 lbs.
Right front:	1000 **–** 500 = 500 lbs.

Alright, now we are coming into the home stretch of this learning curve. You need to know that although you cannot control the total amount of lateral weight transfer during cornering (as I stated earlier), you CAN have some control over how it is distributed on each axle. Looking at the above example, you see that with or without the sway bar involved, total weight transfer change is always 1000 lbs. You can't change this amount, but you can re-distribute it along the axle. And this is a function of spring rates entirely, which we now know is best controlled during cornering through the use of sway bars.

So how does one control the balance of a car when armed with this knowledge? It's actually very simple at this point, if you understand that increasing tire loading adds to the total amount of traction available from it, but this relationship is NOT linear. The more load on the tire, the more traction available, but the amount of traction gained diminishes as load increases. So at first it's almost a direct "you add 250 lbs. of load, you get 250 lbs. of extra traction", but at 1000 lbs. of load, you might only get 800 lbs. of extra traction. Knowing this, look at the example I gave of the sway bar at work. Since it transfers load away from the inside tire, you lose traction there. Although it transfers this load to the outside tire, it is already quite loaded and therefore the 250 lbs. of load will not increase overall traction by 250 lbs. - more like maybe 150 lbs. Now the inside tire, being much less loaded, could have gained more like 220 lbs. or traction from the 250 lbs. of load. So look at what we have in the end: although the outside tires already do most of the work, adding a sway bar actually lowers the total amount of traction available at this end of the car by increasing the difference in load distribution. And the stiffer that sway bar is, the more it will limit the total traction available at that end.

So, to make a really long post short (again, sorry), what we end up with is the knowledge that *weight transfer ultimately lowers the total amount of traction available at each end of the car*. This is why the more we can limit total weight transfer (by increasing track, lowering the Cg height, or lowering overall vehicle weight) the more total traction will be available. But for the purposes of this post, we are explaining how sway bar sizing (which directly reflects its roll stiffness amount) cures an unbalanced car. If a car is understeering, it's because the rear end has more total traction than the front. If you put a big sway bar on the rear suspension to limit the total amount of traction available there (by maximizing the amount of load transfer to the outside wheel), you can dial it in to match the front suspension's total available traction. And when we get really smart, we start to match the front & rear bars to one another to achieve the best balance through the largest possible range of suspension movement

Note: This is a primer on the vehicle dynamics governing roll stiffness and its effects on cornering balance, NOT a purely scientific explanation of this. Some forces at work have been left out for simplicity. The point with these posts is to gain a basic understanding of what's going on when you enter a corner, not be able to design your own suspension system.
