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## INSIDE THIS ISSUE:

|                                   |   |
|-----------------------------------|---|
| <i>Members of the Month</i>       | 1 |
| <i>Suspension &amp; Alignment</i> | 2 |
| <i>Minutes</i>                    | 5 |
| <i>Calendar</i>                   | 6 |

### Southern Colorado Corvette Club

**Mailing Address:**  
2566 Taylor Lane  
Pueblo, CO 81005

**We Meet every 3rd Tuesday**  
**at the Pueblo Public Library**  
**100 E. Abriendo Ave**  
**7:00 PM**  
**Come Join us.**  
**Dinner following Meeting**

## BILL & SALLY KENNY



Sally and Bill Kenny moved back to Pueblo in 2005 from Dearborn, Michigan after an almost 40 year absence. In 1962 the company Bill worked for transferred him to Pueblo to manage the 40 lane bowling center in Sunset Plaza. While there he met Sal and they were married in 1966. In 1968 they were transferred back to Detroit to supervise company operations in five states and Puerto Rico. In 1970 they built a new home on an island just south of Detroit. They had great access, by boat, to all the great lakes and Canada from their back yard. They enjoyed living there for seven years.

Tired of all the travel and being away from home and family Bill resigned his job in 1978. They then bought their own bowling center in Dearborn, Michigan.

After operating their center for 27 years, they decided to sell and move back to Colorado.

In April 2005 they sold their home and along with two cars, two dogs, and United van Lines left for Colorado.

Their first year in Pueblo, they visited the Chili Festival and saw all the beautiful Corvettes on display and decided they had to have one. Surprisingly having driven by one of the largest Vette dealers in the Midwest, at least once a day, for 27 years never once did Bill give a thought to owning one. A visit to the Corvette Center took care of that. They bought a beautiful white 1982 Corvette and have enjoyed it and all the great friends they have made at SC3.

Bill & Sally Kenny

### Trivia 1:

How many 1955  
Corvettes were  
Produced?



### Trivia 2:

How many 1955's  
had 6 cylinder  
engines?

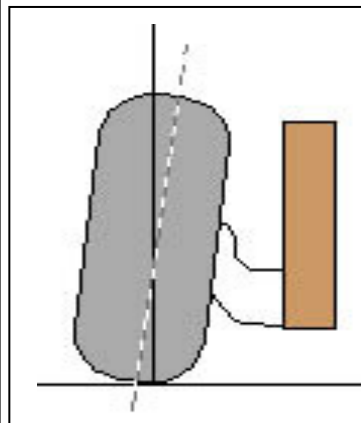


This month, in preparation for subsequent articles, I want to talk a bit about some suspension basics. Most who own Corvettes enjoy them in large part because of the way they handle on the highway. Superior "road holding" and quick response are features that have distinguished Corvettes for years. It is, of course, a combination of things that produce these characteristics but it is the suspension design that is the foundation, so first let's talk about some basics that apply to all road vehicles.

### Alignment

Let's first talk about getting the wheels pointed in the right direction when the car is stationary. The four tire/pavement interface "patches" are the only contact your car has with the road. Optimizing the forces in those patches is obviously important.

**CAMBER** Camber angle is that angle of tilt between the top of the tire and the bottom when looking from the front or rear of the vehicle. Positive camber



**Camber Angle**

## SUSPENSION & ALIGNMENT

defines a condition when the top of the tire is angled outward (relative to the center of the vehicle) from vertical. Negative camber is when the top of the tire is angled inward. Figure 1 shows the wheel/tire set with a negative camber angle.

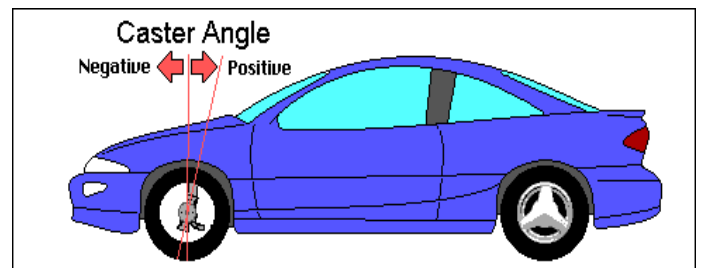
Generally, depending on the construction, modern tires develop maximum cornering force at a camber angle of zero to about  $\frac{1}{2}$  degree negative. Even though the static camber angle can be accurately set, complications conspire to change that angle when you put the car into a corner or try a quick lane change. There are two primary factors that effect camber angle during cornering:

**Deflection** – For most passenger car suspension designs, regardless of the stiffness of the suspension bushings (maybe the subject of another article) lateral forces at the contact patch will result in some amount of suspension deflection that will tend to move the static camber angle from negative toward positive.

**Camber Gain** – As a car negotiates a corner the body rolls and the wheels move relative to the body,

outside wheels moving up into the wheel well and inside wheels moving down. Both modes of motion can change camber depending on the suspension design. Body roll tends to encourage camber changes toward positive. The effects of wheel movement on camber again depend on the suspension design.

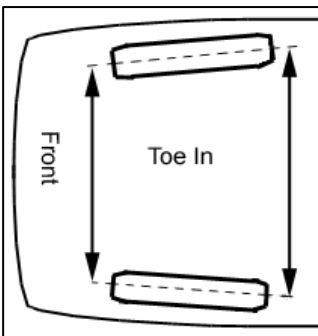
**CASTER** Caster is the fore-and-aft angle between vertical and the steering knuckle pivot axis. Positive caster is a situation when the steering axis is inclined rearward at the top as shown in Figure 2. This angle produces a self-centering force that tends to return the wheel to a position aligning it with the direction in which the vehicle is traveling. Negative caster would produce the opposite effect. Therefore larger positive caster settings tend to aid on-center feel or stability especially at high speeds or under hard braking. The primary disadvantage of larger caster angles, especially on cars with manual steering is increased steering effort at low speed. This is why the specification for a C3 Corvette with manual steering is about +1 degree while the setting for a similar car with power steering is +2  $\frac{1}{4}$  degrees.



**Caster Angle**

**TOE** This setting is the difference in distance between one tire centerline and the opposite tire on the same "axle". Toe-in is the setting when the fronts of the tires are closer than the rear and toe-out is the setting when the rear centerlines are closer. On most street vehicles the static toe setting is slightly in. As the vehicle travels down the highway rolling resistance forces cause a small amount of deflection in the steering linkage that tends to bring the static toe-in to near zero.

For most vehicles the owner only must be concerned with these suspension settings at the front of the car. The tire angles are basically fixed for vehicles with solid rear axles. For the owners of C2 and newer Corvettes, however, there is the added challenge of making sure that the camber and toe settings are correct on the independent rear suspension also. Camber settings have the most influence on vehicle cornering ability. Factory recommended settings are a compromise between good handling and reasonable tire wear. Going more negative on camber settings (up to a point) will likely increase cornering power but a price will be paid in in-



Toe in

creased tire wear on the inside shoulder. Deviation of toe settings from manufacturer recommendations will also most assuredly result in more rapid and non-uniform tire wear.

We must suffer through one more technical term before we go further.

**SLIP ANGLE** When cornering, the carcass of the tire does not directly line up with the direction that it is moving. Slip angle refers to the angle created between the line perpendicular to the rolling axis of the tire and direction that the tire is actually going. See Figure 3. As cornering force build the slip angle grows larger.

### Cornering Balance

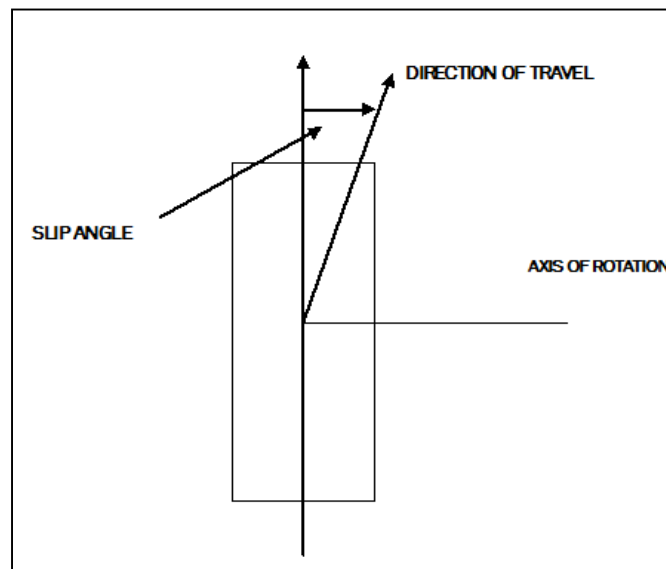
Finally we must define two more terms in preparation for future discussions on vehicle handling.

### UNDERSTEER/OVERSTEER

When a vehicle is driven hard through a turn it will have a tendency to understeer, oversteer, or be neu-

tral. In very technical terms a vehicle understeers when the front tire slip angles (remember that term) are larger than the rear tire slip angles. Conversely a vehicle oversteers when the rear tire slip angles are larger. In more general terms a vehicle understeers when the driver turns the steering wheel for all he's worth but the beast wants to go straight ahead. Oversteer occurs when the rear of the vehicle wants to "come around" and the whole thing wants to swap ends. Circle track racers say that understeer or "push" is when the front of the car hits the wall first and oversteer is when the rear of the car is the first to hit. Almost all production vehicles are designed to understeer because it is a more stable condition and easier for the average driver to control. There are many variables that affect cornering balance and we will discuss some of those in future articles.

Kevin Koch



Tire Slip Angle

### Trivia 3:

Was vacuum or electricity used to operate 1979 Headlights?



### Trivia 4:

What was the first year to go over 30,000 Corvettes produced?

## Hollydot & Starbucks to Giadones Cruises



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## Minutes of SC3 Meeting 6/19/2008

1. Meeting was called to order by President, Matt Honner. Birthdays and Anniversaries were read.
2. Secretary, Gloria Rouse read minutes of last month's meeting.
3. Treasurer, Brian Dougherty gave financial report and told of thank you notes to club.
4. Vice President/Activities Director Ron Newman announced activities. Friday, July 27 members will meet at Starbucks at 7:00 p.m. at the 4<sup>th</sup> and Abriendo store. Sept. 13, 2008 will be the People's Choice All Chevy Show.
5. Old Business: In reference to last month's inquiries about joining NCCC costs and requirements were discussed.
6. New Business: Discussion was held concerning elimination of front end license plates for Corvettes. Discussion will continue at the next meeting.
7. Trivia Questions from last months newsletter were asked.
8. Meeting was adjourned at 8:40 p.m. Members met afterwards at Chili's for dinner.

**Southern Colorado Corvette Club**  
**2566 Taylor Lane**  
**Pueblo, CO 81005**

# July 2008

SUN MON TUE WED THU FRI SAT

1 2 3 4 5

6 7 8 9 10 11 12

Missouri  
Day Parade  
Fowler

13 14 15 16 17 18 19

SCCC  
Meeting

20 21 22 23 24 25 26

27 28 29 30 31

Auto-  
crossing  
@ World Acren

## Upcoming Events

July 12th Missouri Day Parade in Fowler

July 31<sup>st</sup> August 3rd Annual 'Vettes on the Rockies Breckenridge

July 31–August 3rd Vettes on the Rockies Breckenridge

August 16<sup>th</sup> & 17<sup>th</sup> The Pagosa Springs Rally & Car Show

August 23rd Emich Chevrolet Car Show—Lakewood

# August 2008

SUN MON TUE WED THU FRI SAT

31

Vettes on the Rockies

3 4 5 6 7 8 9

10 11 12 13 14 15 16

SCCC  
Meeting

17 18 19 20 21 22 23

Emich  
Carshow

24 25 26 27 28 29 30

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