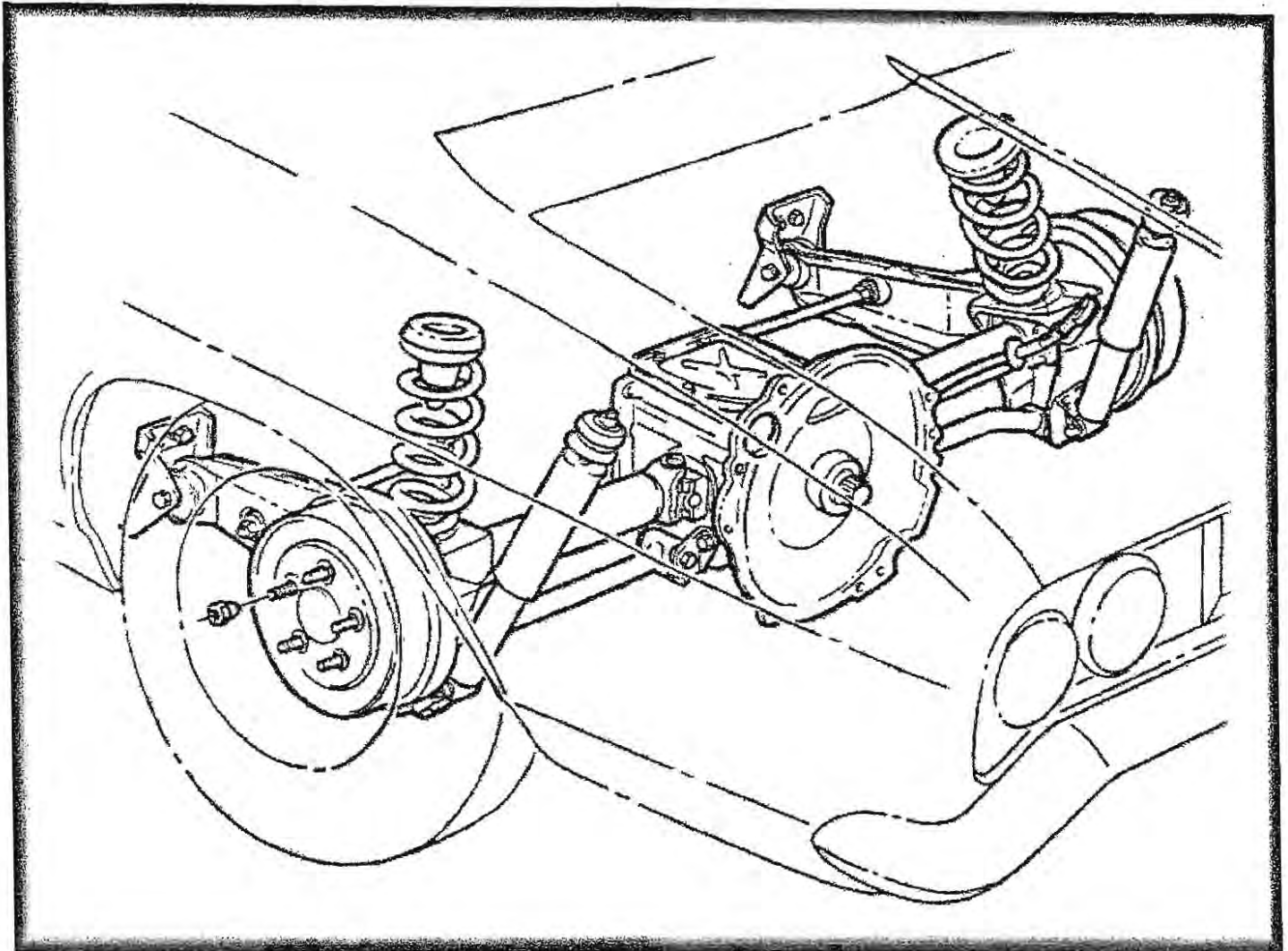


Corvairsation

www.corvairs.org

Tucson Corvair Association
Volume 29, Number 9

Tucson, Arizona
September 2001



Corvair Handling and Stability

**COLLECTABLE CAR TOUR At WOODY WOODSWORTH'S
11050 E. Pantano Trail this Saturday Sept. 15, 11 AM
To caravan, meet at Little Anthony's 7010 E. Brdy at 10:30 AM**

Tucson Corvair Association
Established 1975

Corvairsation is a monthly publication of the Tucson Corvair Association, which is dedicated to the preservation of the Corvair model of the Chevrolet Motor Division of General Motors. The Tucson Corvair Association is a chartered member of the Corvair Society of American (COSA), Chapter 857.

Monthly Meetings are held on the fourth Wednesday of each month, except December. One technical/social event is planned for each month except August.

Membership Dues are \$15 per year for singles and \$18 per year for families. Initial dues are \$15 for singles and \$22 for families (includes name tags). Make checks payable to Tucson Corvair Association.

Change of Address: Report any change of address or phone number to the Membership Chairperson. Do not report such changes to the Corvairsation Editor.

COSA Membership Dues are \$30 per year (\$70 for 26 months) and include a subscription to the COSA Communique, a monthly publication. COSA membership is not required for membership in the TCA, but is highly recommended. See any TCA officer for more information.

Classified Ads are free to members and \$2.50 per 4-line ad to all others.

Deadline for all materials submitted for publication in the Corvairsation is the 10th for that month's issue. Mail or deliver all materials to the Corvairsation Editor.

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**Tucson Corvair Association
Denny's Restaurant on Broadway and Wilmot**

Minutes of the August 22, 2001 Meeting

Barry Cunningham called the meeting to order at 7:53pm. In attendance were Barry Cunningham, Chris Cunningham, Dave Baker, Dave Lynch, Lance Gillingham, Gordon Cauble, Allen Elvick, Don Robinson, and John and Amy Torpey with newborn Emily.

President Barry noted that former TCA member, Michael Begala and his band the West River Band was heard on the community radio station KXCI-91.3FM, performing a live set of music Friday, August 17. Michael still has two Corvairs plus a room full of musical instruments and one of the best collections of Frank Zappa recordings in the Cosmos.

Allen Elvick reported the Club began the month of August with \$1689.96 in the bank. The Club took in \$21 and spent \$44.72 ending with \$1666.24. The income was generated through the sale of merchandise and raffle tickets.

The new look of the Corvairsation newsletter is taking shape with the generous efforts of Van Pershing and the marketing staff at PSE (Precision Shooting Equipment).

"Drive Your Corvair Today" is October 2nd this year (first Tuesday in Oct.). The club unanimously adopted the idea and plan to support it. The concept started as an idea on Virtual Vairs (the Internet Corvair group) and has gotten a lot attention and interest so we are asking everyone to pass the word).

Chris reiterated upcoming events and mid-month activities. Board meetings will resume on September 12, location to be determined. On September 15, the Club will rendezvous at Little Anthony's Diner at 10:45 am. The caravan will depart at 11 am. The Club will provide sodas. Lunch is optional after the tour.

Registration for the October 20th Casa Car show has been sent in. The Club reserved space for thirteen cars (Don't pass up a good chance to let your Corvair shine in public). The event will be held at the Kino Sports Complex from 9am until 5:30pm. Many local car clubs will be represented at the show. It was noted at the meeting that quite a few of our members are also members of other car clubs including Corvette, Model A, and Willys.

Lance Gillingham, Dave Lynch, and Don Robinson donated gifts for the raffle.

John Torpey came forward to fill in for Tim Green as Secretary until the rest of his term. Thanks John!

During Open Forum discussion Dave Lynch brought up the idea of collaborating with Watson Chevrolet since his brother is now employed there as a salesman. Gordon Cauble participated with a story about a potential new member who is having his Corvair engine rebuilt by Lonnie at H&H Auto.

The meeting ended on the lighter side with two JOE's (Joke Of the Evening) furnished by Barry and Gordon. Don Robinson motioned for adjournment at 9:05pm. Allen Elvick seconded the motion.

TCA Officers

Barry Cunningham-President, Chris Cunningham-Vice President, Allen Elvick-Treasurer, Tim Green-Secretary, Paul Dunn-Membership Chairman, Dave Baker-Librarian



Prez Sez

Greetings, Club members! It's time to get the ball rolling on our exciting get together. This coming weekend tour is about everything you ever wanted to know about car restoration-----just ask Woody. Hope to see you there.

It's also time to start preparations for the Casa Car Show. We have twelve car promised at the August meeting for the Show; but know there are other nice Corvairs which should also be in the display. Please shine up your car and participate on October 20.

The Fan Belt Toss and Swap meet is the first weekend in November, then Little Anthony's Show on November 17. Are you ready?

We have club business cards to distribute, so please come to this months meeting and grab a handful. See you soon.

Barry



from the editor-----

The CORSA National Convention was in St Charles. Herb Berkman was there, but I haven't seen him, although he did report on the convention from 31,000 IFR headed for Rhode Island. The convention was very good, mainly because all events were held on the host hotel property. Herb participated in the autocross, economy run and rally with Jim Rice and in his car. Results of all events are in the August *Corsa*. This year the People's Choice car display was twice as large as in previous years. The big spectator event was the valve cover race and Herb has good pictures of this. He was one of the concourse judges and they did 70 cars and were done about 1 PM, smooth! Great convention, sorry I couldn't be there. More detail from Herb when he gets back (October Meeting). Next year we'll all be there in Flagstaff.

Barry's right! Great events coming up! Don't miss the tour to Woody's this Saturday. You will love it. We will be touring from Little Anthony's (and car pooling if desired), leaving there at 11:45. Drive Your Corvair Day is an international event we can all participate in. Every Corvair owner in the USA and Canada is encouraged to drive their Corvair on October 2. See you on the road; I'll be waving at you. Much more coming up! The Casa show, the fan belt toss and Little Anthony's.

Here's the promise primer on suspension and handling prepared and edited by Van Pershing. Enjoy!

Drive Your Corvair Day --- October 2,2001

Corvair Handling and Stability

This article was borrowed from Gary Aube's page: <http://www.corvaircorsa.com/intro.html>

"Didn't these things roll over?" There it is again, **that** question. Corvair owners know it well, and many have nearly worn themselves out answering it. It's the *Nader* question, and most people have heard *something* about Nader and the Corvair, but few truly know the facts.

Bob Helt, a well known and longtime member of the *Corvair Society of America* (CORSA) is a tireless defender of the Corvair. After one of his visits to this site, he sent me a message encouraging me to present the facts about Nader and his charges against the Corvair. His comments appear below and are accompanied by some technical drawings and a few of my own remarks on the subject of the Corvair's handling characteristics.

GOVERNMENT TESTS PROVE THE CORVAIR DOES NOT HAVE A HANDLING OR STABILITY PROBLEM

By Bob Helt

Nader's Charges

In his 1965 book, *Unsafe at any Speed*, and several preliminary articles in the national magazine, *The Nation*, Ralph Nader charged that the 1960-63 Corvairs had a defective rear suspension that made them prone to roll-over and dangerous to drive. He claimed that they were prone to roll-over and loss of control. Although his facts were meager, his charges were hard-hitting and were picked up by all news covering organizations. Although only the first chapter of his book was devoted to the Corvair, that is the thing most remembered about his book, and most associated with Nader. As a result of his charges and subsequent U.S. Senate hearings there was a growing national concern about automobile safety, with the Corvair the center of attention.

Thorough Testing

Due to Nader's wild charges about the Corvair and the national concerns for automobile safety, the National Highway Traffic Safety Administration (NHTSA) was authorized to run a series of comparative tests during the Spring and Summer of 1971 to demonstrate the handling of the 1963 Corvair against four contemporary competitive automobiles. Involved in the tests were The Ford Falcon, Plymouth Valiant, Volkswagen Beetle, Renault Dauphine, the 1963 Corvair, and a 1967 Corvair for reference.

The test program was quite comprehensive and detailed. It was divided into four parts:

- a comprehensive search and review of all related General Motors/Chevrolet internal letters, memos, tests, reports, etc. regarding the Corvair's handling
- a similar search and review of all related public technical literature
- a review of all national accident data compiled by insurance companies and traffic authorities for the six cars selected for these tests
- a series of actual driving and handling tests designed to evaluate the handling and stability under extreme maneuvering conditions; and to push the test vehicles to their limits

The Corvair Is Exonerated

At the conclusion of these tests, the NHTSA released its 134 page report. It exonerated the Corvair from Nader's charges, and said things such as: "The 1960-63 Corvair compares favorably with contemporary vehicles used in the tests," and, "The handling and stability performance of the 1960-63 Corvair does not result in an abnormal potential for loss of control or rollover, and it is at least as good as the performance of some contemporary vehicles both foreign and domestic." The complete report, PB 211-015, can be obtained from the National Technical Information Service (NTIS)*.

An Independent Panel Agrees

Because the NHTSA wanted to be as sure as possible of their approach, tests and conclusions, they then contracted with a three man advisory panel of independent professional engineers to review the scope and competency of the NHTSA tests. This review panel then issued their own 24 page report (PB 211-014, also available from the NTIS*).

In their report, the Panel drew even stronger conclusions in support of the Corvair than the NHTSA. They said, "It is the opinion of the panel that the Corvair quantitatively meets or exceeds the standards set by contemporary cars in stability tests, cornering tests, and rollover tests," and, "for this reason the panel concluded that the 1960-63 Corvair does not have a safety defect, and is not more unstable or more likely to roll over than contemporary cars."

Nader is Proven Wrong

Wow, go back and read that again. No safety or handling defects in the Corvair! But does anybody know this? The news media all but ignored these conclusions. They apparently thought that Nader's charges were of greater news value than the fact that his charges were all proven wrong. Even today, of those who know of Nader's charges against the Corvair, few if any know that his charges were false and were proven wrong. No, the fact that the Corvair was exonerated of all of Nader's charges was hardly publicized. It received little or no attention from the media.

It is ironic that these false charges concerning the Corvair's handling and stability are all anyone remembers, and are the only story ever told in the Press, even though they have been fully refuted by actual tests. Nader, of course, built his career on these false charges.

*National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161

By the time the U.S. Department of Transportation (DOT) issued a press release dated August 12, 1972, setting out the findings of the NHTSA, the Corvair had been out of production for more than three years. While the press may have been reluctant to publicize the good news about the Corvair ("Good news doesn't sell papers!"), it was fitting that the NHTSA accompanied its press release with a letter addressed to all Corvair owners, so they would hear of the good news and put to rest any insecurities about the safety of their cars. In its letter, the NHTSA indicated:

"The Corvair handling and stability compared favorably with the other contemporary vehicles used in the NHTSA testing programs. Vehicle rollover did not occur in any of the comparative tests for the Corvair, Falcon or Valiant. The Volkswagen and the Renault did rollover in some of the comparative tests."

On the following pages, we'll have a look at some drawings of the 1960-63 Corvair rear suspension as well as the 1964 suspension upgrade and the 1965 redesign.

The intended purpose of a vehicle (how that vehicle will be used by its owners) plays a major role in the design of a vehicle's suspension system. The original Corvair wasn't designed to burn up the racetrack. It was intended to compete with the small, inexpensive European imports such as the Volkswagen. The imports were light and extremely fuel efficient, and their popularity was astounding. The Corvair, if it were to compete effectively, would be an economy car. However, its unique design would be embraced more by driving enthusiasts than by the economy buyer, and this resulted in some changes in Chevrolet's marketing strategy. Within the first two years of production, the car would be transformed from an "economy" to a "sporty" compact.

The big three American manufacturers had all released new compact cars for the 1960 model year. Ford and Chrysler chose simply to build a smaller version of their full size cars. They took a conventional approach to the compact, and used a front engine/rear drive configuration, with a conventional solid or "live" axle at the rear. Chevy opted for a rear engine configuration similar to the Volkswagen, which dictated the use of an independent rear suspension. A conventional solid axle was out of the question, as the differential carrier could not be suspended with the wheels. The differential carrier, transmission and engine were combined into an assembly

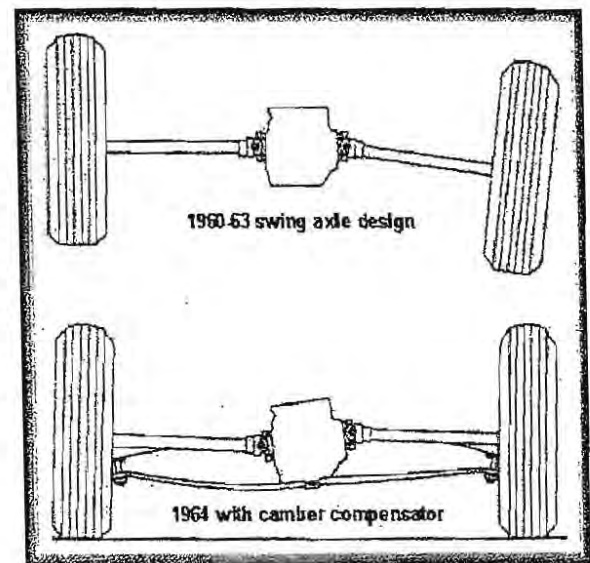
called a "Uni-pack," from which two separate axles extended to the rear wheels from universal joints at the differential carrier. This is known as a *swing axle* configuration, and at the time was common to Mercedes Benz, Porsche and Volkswagen.

In a conventional solid axle setup, the rear wheels remain perpendicular to the ground, no matter how heavily the vehicle is loaded, and in all handling situations. With swing axles, the rear wheels move in arcs around their attachment points at the differential carrier. This means that when a swing axle vehicle is heavily loaded, the wheels arc up slightly into a negative camber stance where the top of the wheel and tire leans into the wheel well. Conversely, when the wheels are unloaded, such as is the case when on a hoist for servicing, they arc into a positive camber orientation shown in the top right part of the illustration below.

When the Corvair was introduced, the arcing action of the rear suspension was viewed by many North Americans as "looking funny." Wheels, they thought, were supposed to go straight up and down! While it might be okay for a Volkswagen's wheels to go into a V on a gas station hoist, a Chevy's wheels were, in the minds of consumers, supposed to be straight. The "odd" and changing attitude of the Corvair's rear wheels might have contributed to the controversy that developed regarding the Corvair's suspension.

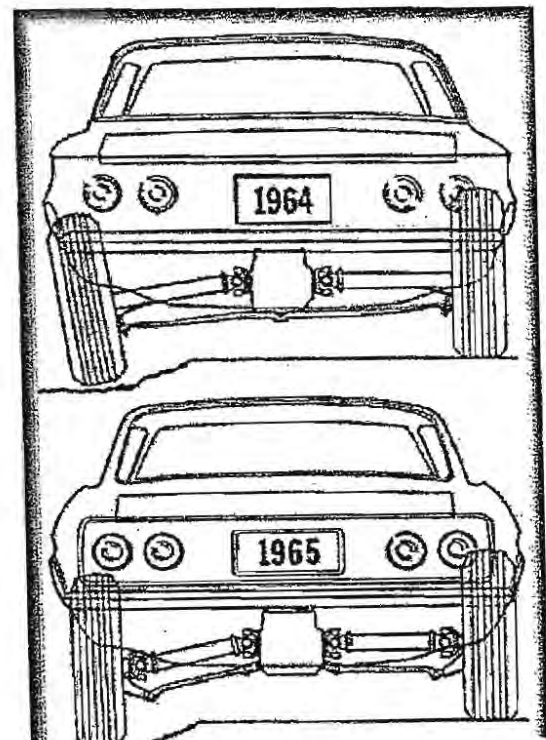
The drawing at right illustrates the difference between the swing axle used on 1960-63 Corvairs and same setup with a camber compensating, transverse-mounted leaf spring as used on the 1964 Corvair.

The drawing shows the rear suspension under roll (cornering) conditions. Lateral loading of the outside rear wheel causes what has come to be known as "tuck under" in the 1960-63 design. This condition, as the NHTSA determined, does not cause instability, but even today, it "looks funny." The addition of the camber compensator was a positive development, and one that improved the handling of the 1964 Corvair, considered by many (but not all Corvair fans) to be the best of the early models.



In time for the launch of the second generation Corvair ('65-'69), Chevrolet drew on the expertise of Corvette engineer Zora Duntov, who helped cook up a variant of the Corvette independent rear suspension (IRS) for the Corvair. Chevrolet had moved from a solid axle to an IRS in the second generation Corvette, the 1963 Stingray. The Corvette design used half-shafts with universal joints at both the differential carrier and the wheels. The Corvair received the same treatment, with a couple of significant differences; the Corvette used a single, transverse-mounted leaf spring, while the Corvair continued to use a coil spring at each wheel. The Corvair also got a lower link or strut as can be seen in the illustration at right.

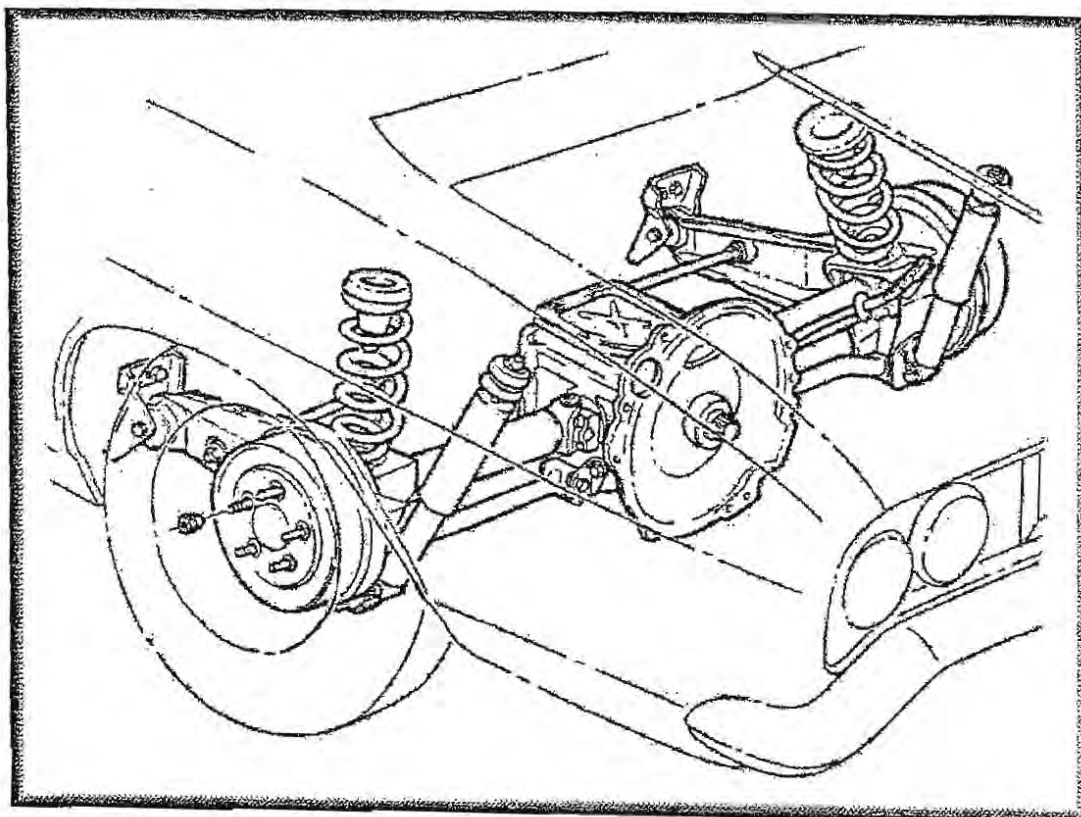
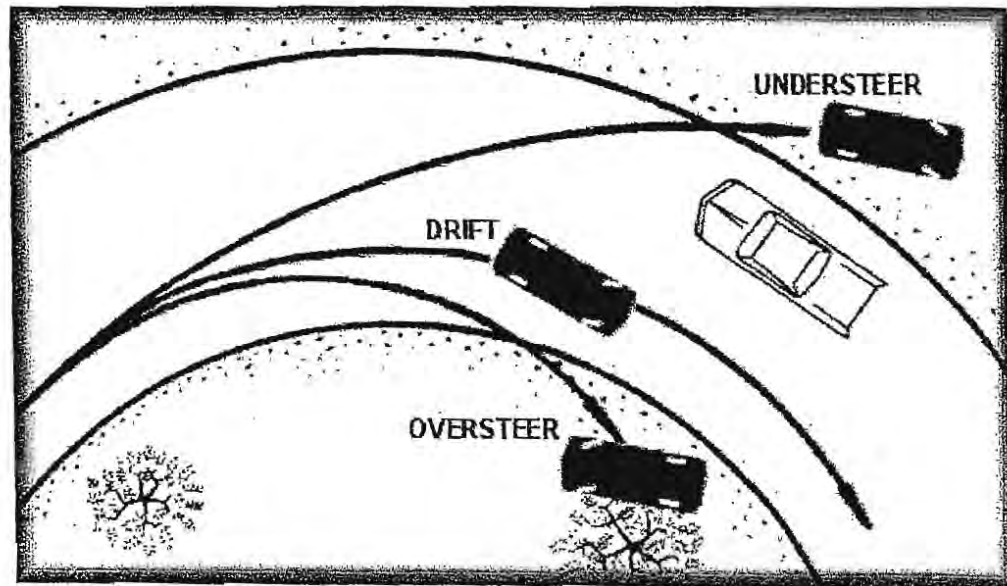
With the late model setup, the Corvair rear wheels remain in a relatively perpendicular attitude under most operating conditions. The suspension design is intended to be set up with slight negative camber. When put up on a hoist, the late model's wheels settle to a slightly positive camber. This design *looked* better, but more importantly, it resulted in further improved handling for the Corvair, a fact that even Ralph Nader acknowledged in his book.



NHTSA studies and technical drawings aside, there is no test like personal experience. As someone who has rolled over in two Volkswagens (once wasn't enough), and as an individual who's pushed both early and late model Corvairs to their limits, I can say without reservation that the Corvair handles very well, particularly when in the hands of a competent driver. Competent drivers make it their business to *know* their cars. Competent Corvair drivers understand the physics of a rear engine (tail heavy) design. The rear of the car will break traction before the front, where a front engine (nose heavy) design will break loose first at the front.

Every car will go out of control if pushed too hard. When tires reach their limit of adhesion and lose traction, they are rendered incapable of propelling, steering, or effectively braking a vehicle.

In the drawing at right we see the results of runaway understeer, oversteer, and a happier medium, a drift. The wonderful thing about oversteer is that it gives you the option to drift. Understeer puts you in the weeds. Oversteer, if managed correctly, can be corrected by a quick turn of the steering wheel away from the direction of the turn. In my opinion, a car that oversteers is more controllable and therefore, safer.



Spares & Vairs

For Sale: 1963 Corvair Deluxe, 2 door, 102 HP, AT, Soft Ray Glass, 68K original miles. Bought new at O'Reilly's Chevrolet in Tucson. Needs Nothing! \$3400 OBO Don or Betty (520) 886-1076.

For Sale: 1964 Monza Coupe, 4-speed, 110 HP. Complete new interior. Electronic ignition, Electric fuel pump, Converted to an alternator with internal regulator. Clean Straight Arizona Car (ask Gordon Cauble in Tucson). Asking \$5,500 or will consider offers. Pictures available on request. Vic Howard (928) 768-6062.

For Sale: 1962 4-Door Monza, automatic, factory air conditioning, 85K original miles. \$3250. Call Dick (520) 299-4723.

For Sale: Corvair parts - Large outdoor yard full of Corvairs and parts, Call Barry Cunningham at (520) 747-9028.

For Sale: 1963 Monza Coupe, Red, 4speed, completely restored in and out. Brand new interior and tires. A beauty. \$11,000 invested. Sell for \$3700. Call Don at (520) 743-3346.

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