



the fifth wheel

JANUARY 2013

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Chevy's Side of the Story A Book Review

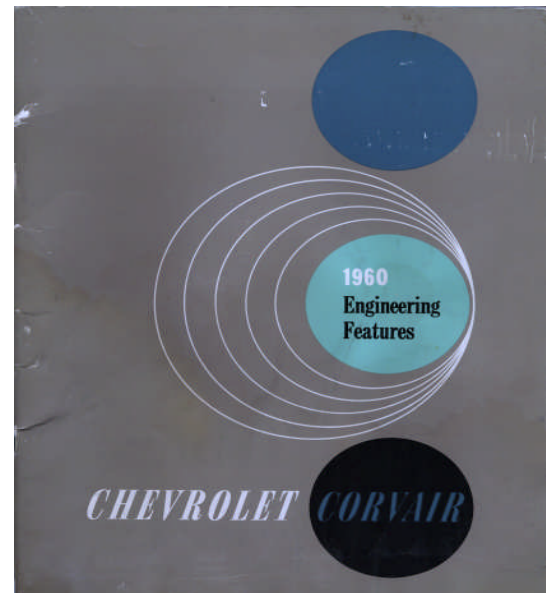
Corvair 1960 Engineering Features, by Chevrolet

During the autumn of 1959, Chevrolet published a beautifully-illustrated 72-page soft cover book named "Chevrolet Corvair 1960 Engineering Features". It is surprising that it has never been reprinted, for it provides fascinating insight into the revolutionary design of our favorite car, the Chevrolet Corvair.

It begins with a foreword by Chief Engineer Harry Barr, who wrote,

"The Corvair represents a break-through in compact car design. By starting with a clean slate, taking advantage of recent technological advances in automotive and allied fields, Chevrolet engineers have designed a new kind of car - one that meets a combination of requirements that as recently as five years ago would have been impossible to satisfy."

This article consists of quotes from this interesting book, with some comments thrown in from your friendly newsletter editor. Also included are copies of some



of the illustrations from the book. You'll be reminded of the reasons why Corvairs are such cool cars, and you may even learn some facts you have never known!

Economy Cars. Why the Corvair?

In the 1950s, after a few false starts, the economy car bug bit American hard. The Rambler

(Continued on page 2)

The Fifth Wheel is published monthly by the Lehigh Valley Corvair Club (LVCC), Inc. We accept articles of interest to Corvair owners for publication. Classified advertising of interest to Corvair owners is available free of charge to all persons. Commercial advertising is also available on a fee basis. Please contact our newsletter editor, Allan Lacki for details.

LVCC is one of the many regional chapters of the Corvair Society of America (CORSAs), a non-profit organization that was incorporated to satisfy the common needs of individuals interested in the preservation, restoration, and operation of the Chevrolet Corvair. LVCC caters to Corvair people who live in and around the Lehigh Valley Region of eastern Pennsylvania. This is a very special car club! LVCC dues are \$10 a year for CORSA members or \$15 a year for non-CORSA members.

American and Studebaker Lark led the way, challenging those silly little imports from Europe. All of the domestic contenders were essentially scaled-down versions of full-size cars, with the usual front-engine / rear wheel drive configuration. Chevrolet could have introduced a similar economy car, and it eventually did so with the Chevy II. But for a few short years, Ed Cole took Chevrolet in a different direction with the Corvair. What were Ed and the folks at Chevrolet trying to achieve? The Engineering Features book tells the story.

"Volume manufacturers must offer a carefully selected variety of models and equipment options if they hope to compete for the mass market. One faction in that market has enunciated a set of specifications that actually defines a new kind of car, and in recent years its number has grown. Today this group constitutes a sizable market for a car that will meet the following qualifications:

Low purchase and operating costs

Comfortable accommodations for six adult passengers

Pleasing proportions

Easy handling without power assists

Performance equal to American standards

Soft, quiet ride.

No single car on the market today has been able to meet the first qualification without seriously compromising one or more of the others. Only by taking a whole new approach, utilizing recent technological advances in both designing and processing, were Chevrolet engineers able to overcome long-standing obstacles to a fundamentally sound light car design."

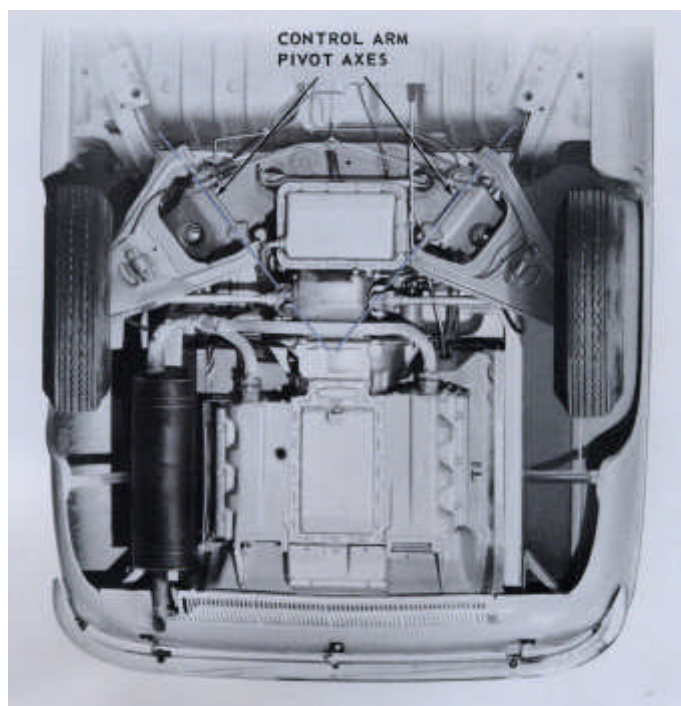
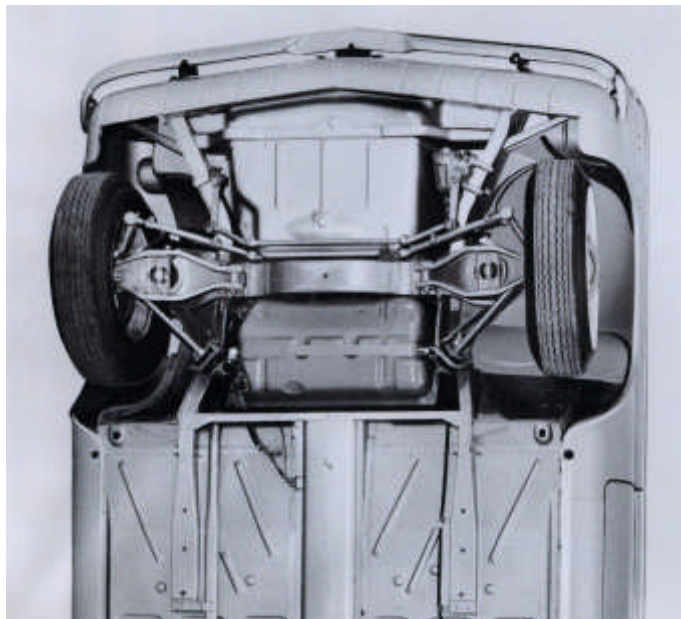
Rear Engine Cars Make Sense!

The book explains why Chevrolet put the engine in the rear. Today, some of the reasoning may seem quaint, but not all of it. Check out the comment about weight distribution in the following passage. There is a reason why, to this very day, big concrete mixer trucks have the engine in the rear, and it's elegantly explained here:

"Studies have been conducted on "smaller car" designs for the past fifteen years. All configurations point inevitably to the fact that length and width reduce more readily than does height. Any reasonably proportionate height dimension emphasizes the floor tunnel to the point of creating a four passenger car. Going in the other direction, simply accepting the appearance disadvantage of a high roof, creates an equally disturbing problem. Resulting center of gravity is high enough to adversely affect vehicle control.

These considerations indicate then, that eliminating the floor tunnel is the only practical solution to light car design.

To do this means an engine in the front driving the front



wheels or an engine in the rear driving the rear wheels.

The front engine, front drive car cannot be seriously considered. Fundamental shortcomings include too great a variation in the weight distribution between loaded and unloaded conditions, too little room between wheelhouses of turning wheels, and handling on turns that varies with throttle opening.

Rear engine, rear drive on the other hand has none of these drawbacks, and in fact, offers several basic advantages. Weight distribution, front to rear, remains virtually constant

under all conditions of load from driver only, to a full six passenger load. This quality allows the engineer to design for the lowest possible spring rate with the assurance of little or no change in car attitude or handling characteristics from minimum to maximum load conditions. Driving traction and braking characteristics are outstanding."

Unit Body Construction Meets Rear Engine Design.

It's a true fact that early Corvairs were structurally solid, and this is especially so for those built for the 1960 model year because of the extra welds in their unit bodies.

"The body is excellently adapted to integral construction, since it has none of the problems occasioned by the presence of a central tunnel, or a recess in the dash for the engine. It combines a low roof with ample headroom, easy entrance and exit, adequate seat height, and a flat floor. It has none of the road noise, engine noise, and shake in the front compartment so often associated with integral construction in a light car. There are two reasons for this. One is the much better front structure due to the absence of the engine. The other is the use of large front tires with low inflation."

Air Cooled Aluminum Engine Offers Faster Warm-Ups.

Few owners paid much attention to carb synchronization, but they enjoyed good fuel economy anyway. Here's why:

"In addition to the saving in weight there is no anti-freeze, and no boiling. About two minutes after starting, the engine is up to temperature, the choke is off, and a great deal of the fuel is saved which normally is used to heat the cast iron, cooling water, and radiator of an ordinary engine."

Rear Weight Bias Provides Superior Braking.

Your humble Corvair and your neighbor's \$100,000 Porsche 911 share this engineering advantage...

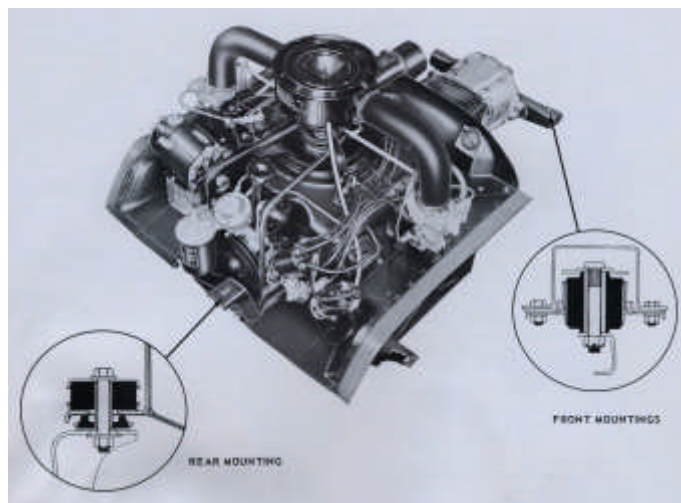
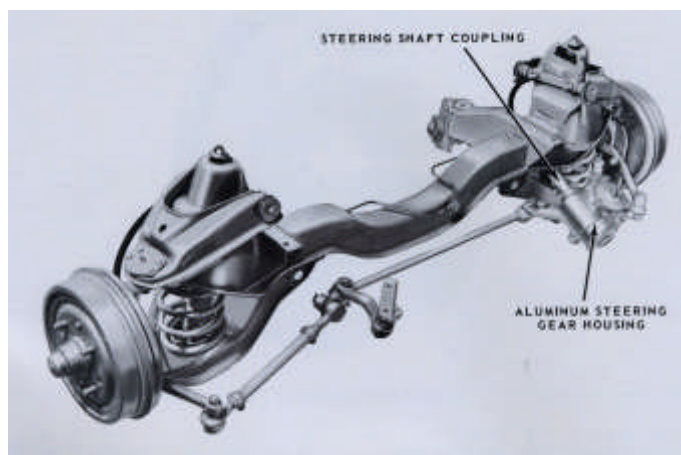
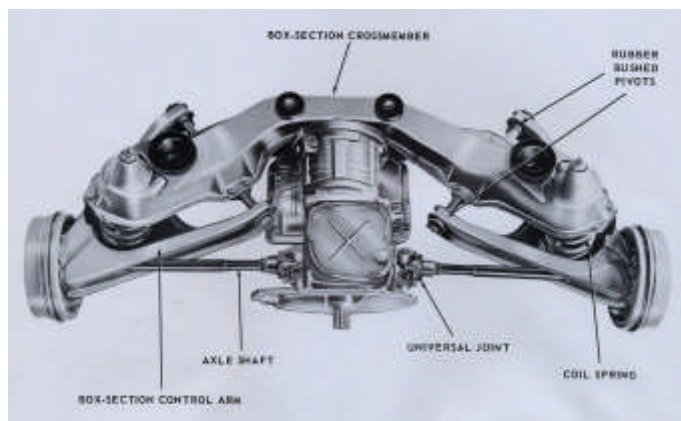
"When carrying the driver only, the conventionally designed light car is so close to unloading the rear end, when braking on a dry road, that little useful braking can be done with the rear wheels."

On the rear engine car, front and rear brakes do approximately an equal amount of work, giving maximum brake life and extremely fade resistant stopping power."

The rear engine car remains almost level when braking, and experiences no overloading of the front tires when brakes are applied."

Front Tires Pave the Way in Snow.

I never thought of this one: (See next page!)



***Chevrolet Corvair 1960 Engineering Features.
Beautifully-illustrated throughout all 72 pages!***

"Traction in snow or on soft roads is exceptionally good, not simply because of the adequately loaded rear tires, but more importantly, because the lightly loaded front tires pave the way for the rears."

Praise Be to Swing Axles!

Today, the mere mention of swing axles makes most sports car aficionados cringe with fear! But in the 1950s, all rear engine cars, including Porsches, had swing axles, and many front-engine cars, too. Mercedes Benz continued to use a variant of the swing axles suspension right up to the early 1970s on the 300SEL 6.3, which was the fastest production sedan in the world at that time. With that in mind, the following passage doesn't seem so out of touch.

"One of the most significant innovations is an independent, swing-axle rear suspension. This design provides low un-sprung weight, positive control of suspensions geometry and good roll steer characteristics, all of which are essential to good vehicle handling and comfort."

Remarkably Quiet and Cool.

An early Corvair with a stock muffler is almost mysteriously quiet.

"Due to the absence of an engine in the front and driveline and exhaust under the floor, the passenger compartment is remarkably quiet and cool. For winter driving, a new air-flow heater gives nearly instantaneous heat."

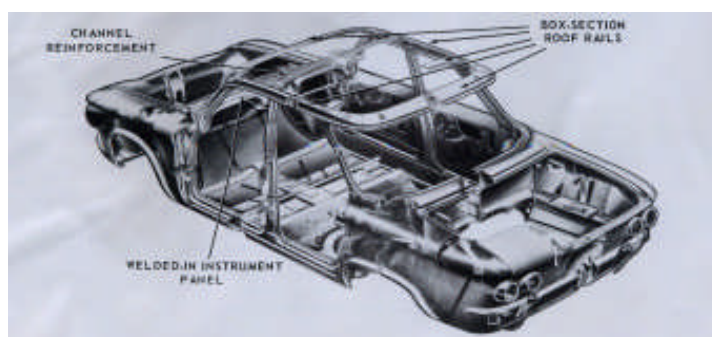
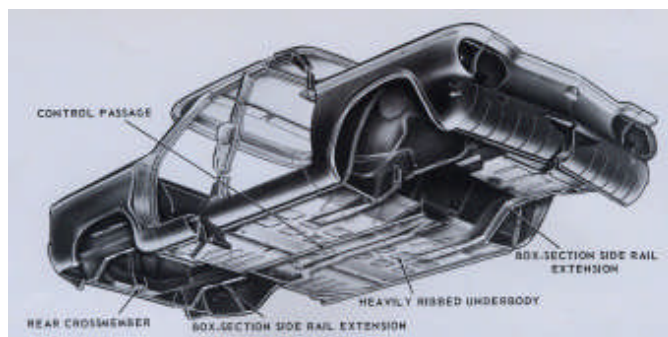
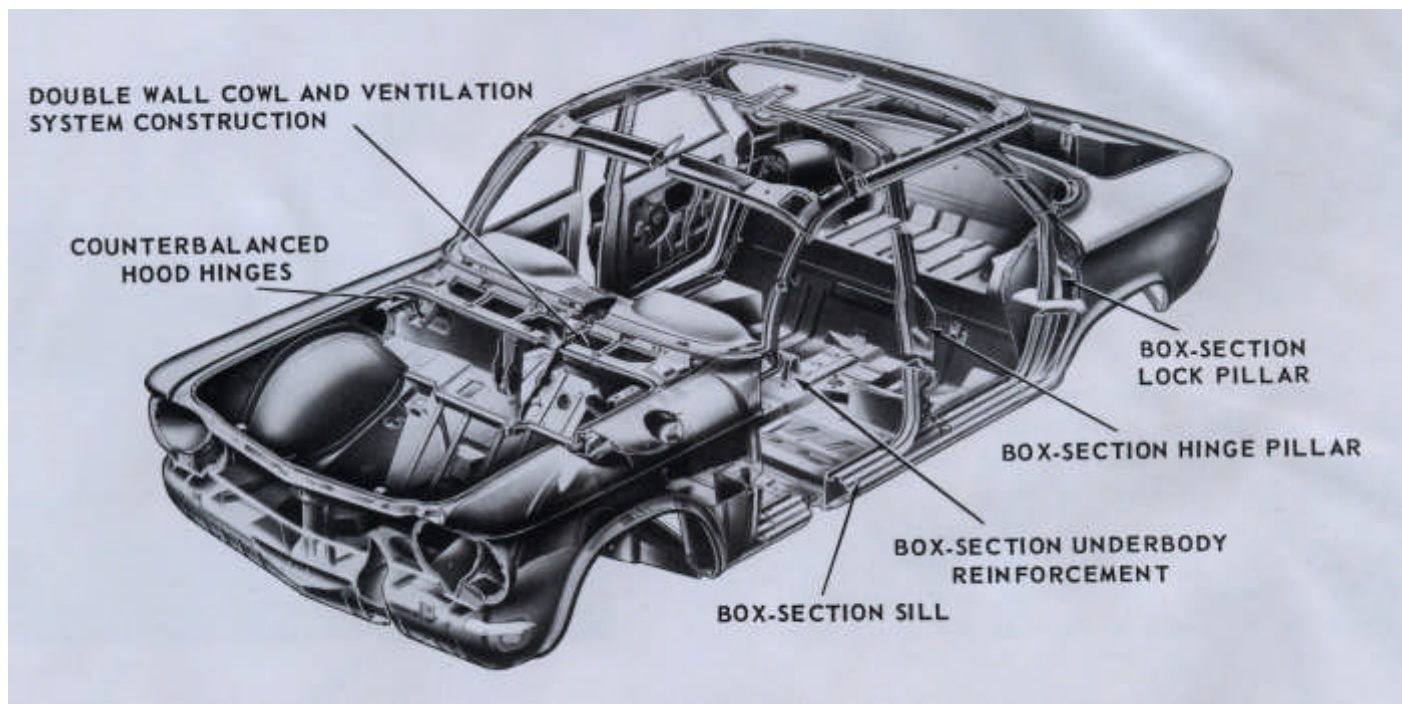
Fuel Tank Virtually Immune from Collision Damage.

Most front-engine cars of the era had the fuel tank located within a few inches of the rear bumper. And some rear-engine cars had the fuel tank located within a few inches of the front bumper. The Corvair was much more safe in this regard.

"The gas tank is protected behind the front suspension and housed within the structure of the vehicle. It is completely removed from the exhaust system, and is virtually immune for front or rear collision damage."

Equally important, the entire fuel system is on the cool side of the engine so

(Continued on page 5)



that fuel loss by evaporation, which occurs on conventional cars in hot weather, is largely avoided, and vapor lock is unlikely."

It's the Economy, Stupid!

"Striking in appearance, with popular American car proportions, the Corvair is an economy vehicle from first cost, on through its operating life. Savings result from low fuel consumption, less expensive parts, uniform wear of brake linings, longer tire life, no need for antifreeze, and, unquestionably, traditional Chevrolet high resale value. The Corvair shows an increase in fuel economy of 25 to 40 percent over the regular Chevrolet Biscayne with Hi-Thrift 6-cylinder engine."

Optional Folding Rear Seat Converts Corvair Into a Utility-Type Vehicle.

Often forgotten is the fact that the 1960 Corvair had a large storage well behind the rear seat. This interior space was sacrificed in later years to accommodate the blower, ducting, and air distributor box for the direct air heater, which had not yet been offered in 1960.

"An optional rear seat with folding backrest converts the Corvair sedan into a utility-type vehicle. When folded, the backrest is continuous with the floor of the stowage well and terminates near the front seat, providing 17.6 cubic feet for cargo inside the vehicle. When this space is used along with that in the under-hood luggage compartment, a total of almost 29 cubic feet is available."

Smooth Riding Comfort!

Chevrolet advertised its full-size cars as having "Jet-Smooth Ride" back in those days. It was a big selling point not only for Chevrolet but for nearly all American car manufacturers. So naturally, this became a design priority for the Corvair, too.

"Contributing importantly to ride comfort is the low center of gravity, the reduction of un-sprung weight and the

independent springing of all four wheels. Also contributing to the soft, smooth ride are modern low-profile tires with improved tread material. Front and rear suspension systems provide nearly the same suspension travel as the full-size Chevrolet passenger cars. By careful selection of spring rates, front and rear, the ride is exceptionally free of pitch, often associated with vehicles of short wheelbase."

Easy steering was a priority, too. Nothing in this booklet suggests that Chevrolet intended the Corvair to offer sports car handling, back in the beginning.

A Curious Comparison of Air-Cooled versus Liquid-Cooled Engines.

Here and there, the Engine Features book reaches a bit too far. For example, the following passage explains the advantages of air-cooling in terms of temperature differentials, conveniently forgetting that water is approximately 3,500 times more effective than air as a heat transfer medium...

"Besides the obvious reasons of weight savings and elimination of a liquid coolant, "air cooling" by its nature contributes additional features that are especially desirable in a car like the Corvair.

First of all, so called "liquid cooled" engines are in fact air cooled, but use a recirculating liquid medium to transfer rejected engine heat to a radiator, which in turn dissipates heat to the air stream. This arrangement, then, becomes dependent on the properties of the liquid heat-transferring medium.

Virtually all liquid-cooling systems today use water in combination with an anti-freeze compound in varying concentrations as dictated by climatic conditions. Thus, the properties of water become important to the liquid-cooled engine. One of the properties of water that is important, in a limiting sense, is its boiling point of 212 degrees Fahrenheit.

Efficiency of the cooling system is affected directly by the temperature differential between the coolant and the engine. That is, the greater the temperature spread between the two masses, the more heat the coolant will be able to absorb from the engine. The same relationship is also true at the radiator, where the significant temperatures are water, limited to a maximum of 212 degrees, and ambient air, which may on occasion exceed 100 degrees. The radiator, then, must present sufficient heat transfer area to the air to dissipate the rejected engine heat through a temperature differential of perhaps only 100 degrees Fahrenheit. As the ambient temperature rises, the liquid cooling system's capacity to reject heat to the air is reduced.

The air-cooled engine, passing ambient air directly over the cylinders and heads, is not restricted to the limitations imposed by the use of an intermediate coolant....Because the air-cooled engine passes the ultimate coolant directly over the fins, as the engine becomes warmer the cooling system becomes more effective, and since the cooling is not limited in top temperature by the boiling point of water, the increased level of cooling effectiveness goes very high."

And So It Goes!

We hope you enjoyed this book review! If you ever have a chance to pick up a copy of "Chevrolet Corvair 1960 Engineering Features", go for it!

LVCC MEETING NOTES

Aha! There are no meeting notes! We've been off for the holidays!

But be sure to attend our next meeting, which will be held on Wednesday January 23! Usual time and place.

Call Al Lacki if the weather forecast looks grim. You can reach Al at (610) 927-1583 (home) or (610) 774-6723 (office).

LVCC MEMBER NEWS!

Wes Heis Is a Dad!

Angie and I are delighted to announce that Tuesday Gray Heiss-Fraleigh was born on August 21st 2012 weighing 6 pounds, 4 ounces. She, like her father, was brought home from the hospital in a 1966 Corvair. I also continued the family tradition of making a mobile out of carburetor floats. Already looking forward to teaching her how to weld, balance carbs and fishtail in a controlled way. Wes



Ron Peles Family Sponsors Car Show! Invites LVCC

My family's business, Industrial Combustion Associates, Inc., "ICA," is sponsoring a car show on May 5 in Moosic, PA. Members of LVCC are very much welcome to show their Corvairs! We'd love to see you there! Ron



Tuesday Gray Heiss-Fraleigh is the new-born daughter of LVCC Member Wes Heiss.

Jason Hewitt Buys His Very-First Corvair!

I bought my 1st Vair!!! A 1965 Monza 110 Powerglide! Jason



The Corvair mystique continues! Jason Hewitt is one of our newer members, and he just bought his very first Corvair! Here it is!



LVCC CLASSIFIED ADS!



FOR SALE: Two vent wing assemblies, left & right, for a 1965 Corvair Convertible. Good condition with good chrome. Asking \$80.00. Contact Carl Moore. Email: moo568@dejazzd.com

FOR SALE: Outside windshield trim for a 1965 Corvair in nice condition. All pieces. Best offer. Contact Carl Moore. Email: moo568@dejazzd.com

FOR SALE: 1961-64 Right rear quarter panel. \$150.00. 1961-64 Left and right front fenders \$100.00 each. Contact Dennis Stamm. Call 484-336-3466. Email: dmstamm@comcast.net



FOR SALE: 1965-69 Front clip. \$150.00. Also partial quarter panel. \$50.00. Contact Dennis Stamm. Call 484-336-3466. Email: dmstamm@comcast.net



FOR SALE - 1966 Corvair 500 . Car is in real nice condition, is inspected and has a lot of new parts. Reduced price - \$1,900.00. I'm located right near Rte 309 and Hilltown Pike in Line Lexington, PA (near Hatfield). The car can be seen at any time since I'm retired. If anyone is interested in seeing the car, my number is 267-467-6018. Leave message if I don't pick up right away. Bob - classiccarb@aol.com

LVCC Calendar of Events!

**Friday through Sunday, January 18-20, 2013 :: Auto-Mania Parts Flea Market & Corral.**

Allentown, PA - Auto-Mania 2013, 23rd Annual Indoor Automotive Parts & Memorabilia Flea Market and Car Corral at the Agricultural Hall Allentown Fairgrounds. PA's Largest HEATED Indoor (NOW 50% Larger) Automotive Parts & Memorabilia Swap Meet and ALL NEW indoor & out door Car Corral (limited Car Corral Space so call ahead!) Admission \$7.00, Friday 12:00 noon - 9:00 pm, Saturday 9:00 am - 6:00 pm, Sunday 9:00 am - 3:00 pm!, P.S. This Event Does Not Cancel For ANY Reason! e-mail: tonyabilliii@yahoo.com or <http://www.automaniashows.com>

Saturday, January 19, 2013 :: Annual Snow Show at Jacktown Grove.

Not a Corvair event, but one of the first shows of the year on the East Coast, it is on January 19 from 8AM to 4PM snow or shine. Make sure you are dressed for the weather. There will be a Gas Engine display, food available on the grounds and bring an empty soup can and get some free Hobo Stew. Blue Mountain Antique Gas and Steam Engine Association, Inc. <http://www.jacktown.org/index.htm>

Wednesday, January 23, 2013 :: LVCC Membership Meeting.

Regular LVCC Club Meeting. 7:30 PM at the Lehigh and Northampton Transportation Authority (LANTA) office building in Allentown, Pennsylvania. The LANTA building is located at 1060 Lehigh Street Allentown, Pa 18103. Call Al Lacki if the weather forecast looks grim. You can reach Al at (610) 927-1583 (home) or (610) 774-6723 (office).

Directions: From I-78: Take Exit 57, Lehigh Street. At the end of the exit ramp, go east toward the City of Allentown. Follow Lehigh Street of approximately 2 miles - past the Parkway Shopping Center on the right and Faulkner Volkswagen on the left - until you reach the LANTA entrance on your left. It is at the intersection of Lehigh and South Howard Streets, right across from a Hess service station. Drive around to the auto parking lot and enter through the office entrance. Our meeting room is on the second floor.

Thursday, January 24 - Sunday, January 27, 2013 :: Motor Trend Auto Show Pennsylvania Auto & Boat Show.

Location: Harrisburg, PA. At the Pennsylvania State Farm Show Complex. Located at 2301 N. Cameron Street corner of Cameron and Maclay Streets, Exit 23 off of I-81. Event Hours: Thursday 1:00 pm - 9:00 pm. Friday - Saturday 10:00 am - 9:00 pm. Sunday 10:00 am - 5:00 pm. Admission: adults \$8.00 Senior Citizens (62+) - Active Military (w/ID) - Students (w/id) \$5.00 Children 7-12 \$3.00, 6 & under are free.. e-mail: Shaun.Foley@sorc.com or <http://www.motortrendautoshow.com/home.jsp> or www.AutoShowHarrisburg.com

Saturday, February 16, 2013. NJACE Parts Auction.

The always-popular NJACE Corvair Parts Auction will be held on February 16th this year. Now is the time to go through your stash of new and used Corvair parts and clean them up for the Auction. More information to come. In the mean time, circle this date on your calendar!

May 5, 2013. ASHRAE Anthracite Chapter 1st Annual Car Show.

Sponsored by LVCC Member Ron Peles' family. Location: 50 Glenmaura National Boulevard, Moosic, PA 18507 (Just above "The Shoppes at Montage") Registration starts at 8:30. Show Hours - 10:00 to 4:00. Trophy Presentation at 2:00, Door Prizes and Drawing Afterwards. Cost: \$10.00 per vehicle if you pre-register, \$15.00 at the gate. <http://ashraecarshow.wix.com/register>

Mail Dues to:

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Next Membership Meeting: Wednesday January 23, 2013
