

# The Denver News

April 2024

The Official Publication of Rocky Mountain Corsa ↔ Volume 49, Issue 4

## Honoring Corvair Studs



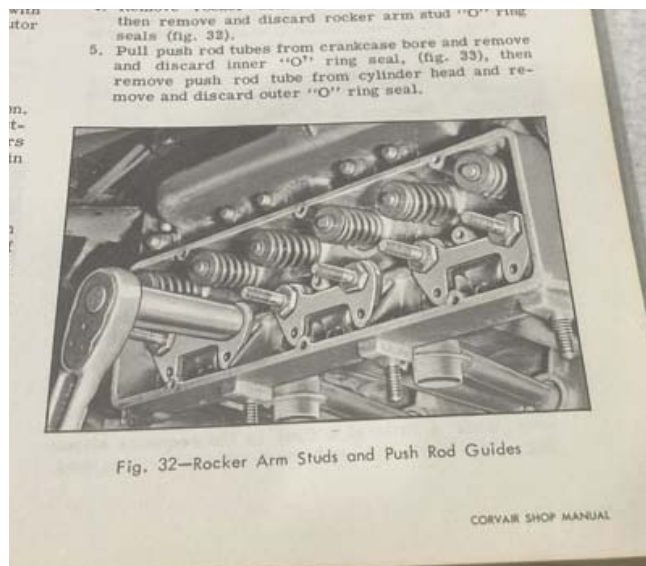
Keep your mind out of the oil pan - this is a discussion of a critical Corvair part in a family-oriented newsletter. This type of article happens when the Editor has to come up with something for the front page and no one has submitted any articles WITH IMAGES. We need fresh images! Just FYI...

The good news here is that Corvair rocker studs actually deserve a headline and a serious dose of respect. Each time your engine starts and all six cylinders report for duty, it means those little guys, who are exposed to tension their entire lives and get nudged around whenever the engine is operating, are still serving at, well, your whim!

So you might want to thank your Corvair's rocker arm studs after your next successful road trip.

Consider that a 200 mile road trip at an average speed of 55 miles per hour will wiggle those spindly little parts, pushing and pulling, approximately 500,000 times (dependent on gear ratio, tire diameter, etc.). And they're expected to last the 'life of the engine', whatever that means. In any case, they're pretty tough.

And, they are absolutely unique to the Corvair flat six engine. Big A, Pep Boys, and even NAPA are useless if you need some. The Corvair's rocker studs serve four distinct functions: 1) Head bolt tension - (six per bank) torqued onto the lower cylinder head studs via Class 3B



### Happening In April...

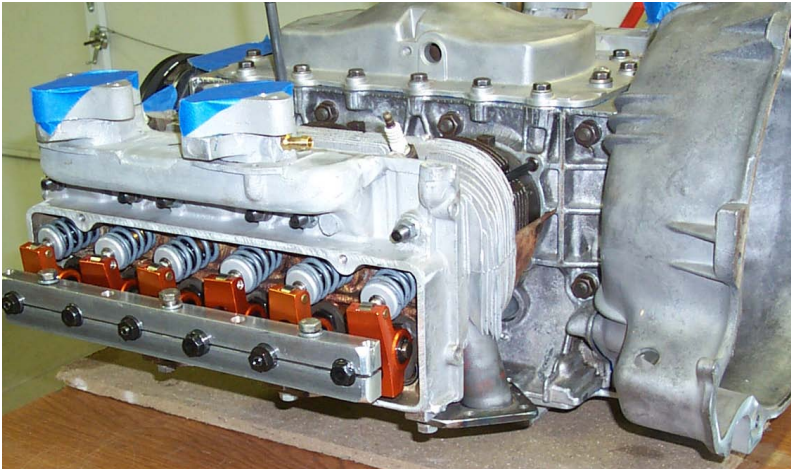
- Friday, April 5, 2024 — RMC Meeting at Elway Chevrolet, 7:00pm
- Saturday, April 13, 2024 — Annual School of Mines Car Show, 10:00 am
- Sunday, April 28, 2024 — Tri-State Tune-Up at Schakey Acres



## *Studs, continued...*

cut threads; 2) O-ring oil seal - radiused lead of body OD polished to serve as oil seal mating surface; 3) Rocker arm pivot support - rocker ball floats over radiused shoulder of stud emerging from hex, and; 4) Rocker arm adjustment mechanism - rolled Class 3A threads on stud support self-locking adjuster hex nut. All are machined from AISI 8740 chrome-moly steel, heat-treated to 200,000 psi tensile (post-machining), and finished with a corrosion-resistant black oxide treatment.

GM OE replacements have been out of production for decades. The extra-length versions currently available from Clarks will accommodate stock or Harland Sharp roller rocker arms (with or without girdles), and are likely produced by ARP in custom production lots (think significant quantities to justify the multiple precision operations) by special order...



It is highly unlikely that anyone will be fabricating these little rascals up in a home workshop... You may want to keep a few extra Corvair studs around your place, just in case!

*When your mind warps to the point where you think a Corvair engine should rev to 7500, you'll need to coddle your rocker studs. These, for example, are stabilized by a girdle.*

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## **RMC Corvair Happenings!**

- Friday, April 5, 2024 — RMC Meeting at Elway Chevrolet on Broadway, 7:00pm
- Saturday, April 13, 2024 — Annual School of Mines Car Show, Golden, CO, 10:00am
- Sunday, April 28, 2024 — Tri-State Tune-Up at Schakey Acres
- Friday, May 17-19, 2024 — Annual Tri-State Meeting, Las Vegas, New Mexico
- Monday, July 22- 17-25, 2024 — CORSA National Convention, Dayton, Ohio

## Rocky Mountain Corsa Official BS & Contacts

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**Rocky Mountain Corsa (RMC)** has been a chartered chapter (#802) of the Corvair Society of America (CORSA) since October 1974, and is dedicated to the preservation and enjoyment of Corvair automobiles.

**The Denvair News** is a monthly publication for members and affiliates of Rocky Mountain Corsa.

### Editorial Contributions

We encourage your participation! Please forward stories, ideas, jokes, recipes, and/or photos to the Editor. Content must be received by the 20th of the month prior to the desired publication month. Electronic files are preferred, pictures are awesome, but please include descriptions!

### Classified Ads

I don't recall RMC doing paid ads in this fine newsletter since the Reagan Administration. Should this section be updated or eliminated now that RMC has a well-maintained web site?

### Business Advertising

Ditto Editor rant above - much the same applies.

### RMC Mailing Address

Correspondence, ads, & articles may be snail-mailed to:

RMC  
PO Box 27058  
Lakewood, CO 80227-0058

### Membership & Dues

Rocky Mountain Corsa annual dues are \$25.00, due each year by February 28. Checks should be payable to RMC, mailed to **RMC, c/o John Dinsdale, 3240 Billings St., Aurora, CO 80011-2231**. Dues may also be paid online via PayPal at this link: [www.rockymountaincorsa.org/dues](http://www.rockymountaincorsa.org/dues)

### Monthly Meeting

RMC holds meetings the 1st Friday of each month at our host dealership, Elway Chevrolet, 5200 South Broadway in Englewood. Join us at 7:00 PM in the upstairs meeting room (above Parts Department).

### RMC Officers & Appointees

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*Many elderly Corvair drivers are assisted by comfort animals and trained pets. Here, a blind (and moderately insane) Corvair driver is learning to drive safely with assistance from a capable seeing-eye dog. Or perhaps the dog is planning a quick escape jump before it's too late...*

## President's Letter, April 2024

Hi all!

This time I have my net and blankie but I'm still a bit in disarray...

Today is the big snowstorm day. I'll go out and shovel in a few minutes and pace myself so I don't become a statistic from over-zealous snow shoveling. By now I've read several articles and I've had one doctor tell me that people over 60 should not shovel snow. We'll see.

The interesting thing today is that Kaiser shut down a bunch of offices at noon today until 10:00 AM tomorrow. Unfortunately, my appointment in the morning got pushed out until mid-April. Fortunately, it is nothing very interesting. My tests have been OK, but less than a week before we go on vacation for a few days my troublesome toe is back at it and getting an appointment is difficult.

Back to the snow front, my employer and Karen's employer both told us to work from home today. The reason I note this is maybe this is a positive thing post-pandemic where many of us are equipped to work from home or already work from home a day or two per week. I generally think it is beneficial to reduce the number of people required to get out into the demolition derby arena. This is not helpful to those who must work with the public or provide services, however.

On my Corvair front, and hopefully some of yours, last weekend was really nice weather. I did a test drive to Loveland and back on Sunday. The weather was beautiful and no clouds in the sky, no snow, no rain. I drove each way at about 80 MPH with the fuel tank from  $\frac{1}{4}$  full to completely full. There were rough patches in the road. No rattles or squeaks from the front of the car. The turn signal switch is working for now, all the gauges

work, the cruise control works, and the tachometer module Clarks is selling worked great, in case you have a non-functional tachometer. The pointer is a tad short but that is minor. I'm not a purist if it is close.

The snow is messing with my plan to start on the pilot bushing so we'll see when I can get that done, hopefully before the events season gets busy. Probably no Corvair driving this weekend even if I don't start on the pilot bushing.

Back to the more general, I believe those present at the last meeting thought John Dawson's suggestion and list of an event per month was received favorably. We can collect various other events and give the information to Mario, but I think the intent is to concentrate on events that the club typically has done annually or that we decide to track more closely. All of the other events can be brought up and information shared with Mario and perhaps on the web site. There is a nearly constant string of them. There are members in the club in PPCC as well as RMC and some of us will also participate in PPCC events. There is no reason for anybody to be bored.

I think we should be about done with annual dues. I think Rick Beets owes us the information on the fee for CCCC. The National Corsa dues are due by the end of the month(?). I need to take better notes. I also owe the board a meeting, so I'll set something up. The main item I can think of is to review our Bylaws and Rules to see if changes need to be made. PPCC ran across some verbiage that needed to be changed to be consistent with the state non-profit rules. If you have items we should discuss please email me, Ken, Rick John Dawson or Rob and we'll track them.

- Mike

# Rocky Mountain CORSA Meeting Minutes

**Meeting Date:** March 1, 2024      **Called to Order:** 7:02 pm  
**Location:** John Elway Chevrolet, Englewood CO      **# Present:** 19 on site, 1 on Zoom.

**Guests, long distance, new members:** None

## Standard Business:

Minutes of last meeting: Minutes from February meeting were reviewed and approved.  
Treasury report: The end of February balance was \$6,606.41. Treasurer's Report was approved.

**Mailbag:** No mail of consequence recently.

## Old Business:

- Thanks Eric for a great newsletter.
- Tri-State Discussion, next steps we need a chair, and committees. Minimally by Tri-State, we need a fixed date, location, and hotel.
- Dale Neilsen brought tonight's snacks. Mario Wibbens will cover April, Caron Wetter took May and the Levins will cover June.
- Dues are now overdue for 2024. Cost is \$25 by check or cash or \$26 on Paypal. Please pay soon! 2 new renewals this month. 35 have not renewed. Just under 50%.
- Facebook Page: Tony got access, set up as admin. Zoom meeting to be posted FB page. Dylan offered his services for social media presence, he is an admin on a separate page, the Colorado Corvair Owners FB Group. Start adding club relevant content.
- CORSA Administrative Fee, due by end of Jan per Standing Rules. \$35, will be paid.
- CCCC Dues: Pay by end of March. \$55 + \$4 per in state member. Discussion of how to handle dual members with PPCC, Rob B noted that this should not be a consideration, as there are no doubt members of multiple unrelated car clubs for which CCCC receives multiple fees.
- Forney Dust and Shine: We are committed for Saturday June 15 for a morning of cleaning cars at the Forney before they open.

## New Business:

- Steve noted that this is the Club birthday, 51 years tonight. He brought some photo albums from past events to view on the front table.
- Chris Jackson reported on several swap meets, finding some Corvair parts.
- Shades to host a car show in March at a GM dealership.
- Eric stepped up on soapbox to discuss events, lots of items listed, rather than going individually to a lot of events and discuss, do something as a club. Do a major thing for a month together rather than listing every show. Steve discussed how the club had an event a month, and focused on that, setting calendar at beginning of year. Need to be a bit more committed now. This would be a focus for an activities chair. Gail Levin expressed willingness to share events. Mario Wibbens accepted the role of Activities Chair, coordinating events, not to be the organizer of all of them. Thank you Mario! Please step up to help us have successful activities through the year. The typical list of events for a year was reviewed.
- John Dinsdale noted several who typically head up events that were discussed are not current paid members. Please pay your dues!

## Activities:

- April 5 (Fri)                      Monthly Meeting, 7pm, Elway Chevrolet
- April 13 (Sat)                    School of Mines Engineering Days (E-Days). Show up around 8 at Phone Company building, 19<sup>th</sup> and Jackson, drive in together to park together.
- April 28 (Sun)                  Tri-State Tune-Up, Schakel Ranch in Sedalia, 11am
- May 17-19 (Fri-Sun)            Tri-State, Las Vegas NM
- June 9, (Sun)                    Concours d' Elegance, John Green coordinating
- August TBD                      Wilshire picnic.

## For Sale or Wanted, Recently Purchased, Projects

Mike gave an update on his gas tank (no squeak yet), doing lights in dash with LED, tach update instructions that's read like IKEA directions, and now has turn signal switch problems. Next up, pilot bushing. Steve says remember safety! Use a 5/8 tap and drive into bottom, and it walks the bushing out. Much safer than bread / grease /etc. which can eject at high velocities causing injury.  
Eric Schakel reported on a car for sale in Aurora though RMVR relations. A, '66 White Corsa Convertible asking 15k. Terry Benton.

**50/50 Raffle:** To Club: \$35      to Winner: \$35      Winner: Andrew Child

**Meeting adjourned**      8:47 pm      **Respectfully by Rob Brereton**

## Is Your Corvair Ready For Summer?

- Steve Goodman

April is near and soon we will actually see and feel warmer temps and want to drive our cars more. Even if the club events are minimal we need to drive our cars for fun/showing off to the motoring public and being a part of the few week-end fun times

First question is how many of you got your nice Corvairs out from under their covers and nice garages and drove them this winter? I DID!!!! I got a couple of decent weekends to take of each the cars out for a 20-30 mile run. I even got to drive the 1968 to Estes Park on News Years Day but I must admit I thought more than 4 Corvairs would be in the parking area. The weather and roads were very good to start out 2024.

I also drive a Corvair virtually every day to the shop too. My 1967 coupe is the shop car and is seen on highways and city streets daily.

Do you keep a maintenance log for each of your cars? Recording oil/filter/lube dates and milage as well as items such as wiper blades/brake shoe condition/master cylinder level/battery age plus looking at terminal ends for cleanliness/of course the fan belt and general look over of the engine is always good. Don't forget the normal routine for front wheel bearing inspection/packing. Also look under the car for oil leaks. Not the tiny dime size drops but puddles. Do this after you do the initial spring drive too.

ONE MORE ITEM: check your air pressures in all 5 tires. Sitting allows tires to lose some air and temperature changes particularly to colder weather makes it easier to be well under the suggested air pressure numbers.

Maybe a little deeper than the above how about an inspection of all rubber suspension bushings? You can do that while the car is up in the air for oil etc and lube. How about rear wheel bearings? NO alarm here but the rears either early or late need attention or at least checking every 30-40K miles. Many live much longer than that but some do not. It depends too upon how far you venture from home.

How about just standing back from the car and look at the way it is sitting on the driveway. It also



gives you the chance to admire the color/lines/visual appeal of your car. No matter the condition of the paint we are driving one of the most eye appealing automobiles ever seen on the roads. The real

reason I am suggesting you gaze upon both sides and front and rear is just a minds eye comparison of how the car looks now compared to last year.

Also along that thought line is just driving the car. Most of you have new cars and there is not anything equal between your new car and your Corvair. Brakes/steering/noise level are completely different between the two. It may take a few miles to reacquaint yourself with the feel of brakes and steering. Oh, almost forgot when you make that first drive put enough miles on it that filling the fuel tank is necessary. Even if you took the car out through the winter months I hope enough miles were added that refueling was necessary then too. Of course if you drove the car through the entire year then the swapping back and forth should not be a

bother to you. BACK TO YOUR LOG BOOK: look at fuel milage and also note everything you check and condition. It is easy to forget that something looked worn.

One last paragraph. DO NOT feel your Corvair cannot leave the metro area here. If properly maintained and in good condition your Corvair will give you the same service it did in the 60s. Attend the Tri-State Tune-up at the Schakel residence in Sedalia; it's a good

drive from the Denver area and will give you confidence to drive to Las Vegas NM in May. Check our websire for details about the tune up Sunday.

HAPPY CORVAIRING!

## Editorial Ramblings

- Eric Schakel

I admit it, I kind of rambled and griped about 'Send The Editor Images' in the lead article. The almost total victory of the Internet over print media tells the story pretty succinctly, I think. And of course, we're still in a quiet time of year for the old car hobby, particularly with alternating sprintime and blizzards through March. But seriously: You want a good DV News? Send images to the editor! I can make up stories, it's much harder to make up pictures...

The lead article was really fun to put together, as it's a Corvair Insider thing that could someday affect us all. Fortunately, GM over-designed the heck out of the rocker studs, and they wear more slowly than Mount Rushmore. Just don't strip the threads!

I hope you'll all consider coming down to Sedalia for the Tri-State Tune-Up. I'll be wrapped in a sling from shoulder surgery, but we've already vacuumed up the dead rodents and cleaned the Corvair oil prints. Rain or shine, we're looking forward to having a lot of Corvairs around the house and shop.

And while you're at the Tune-Up, be sure to take LOTS OF PICTURES!

- Yer Editor

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### Tech Corner - Save Our Corvair Studs?



Gratuitous image of fast Corvair engine. Looks like a standard slow Corvair engine, but for slant exhausts and ultra-racy carb rotator adapters for the four ancient Rochesters...

After such an amazing technical article on the front page, I stand in awe! However, it would seem like an opportune time to note that GM's oddball Corvair likely has other highly-engineered multi-function unique parts worthy of consideration. Perhaps some are even, shall we hope, visible to the casual Corvair owner?

Now, door handles, trim pieces, cosmetic things, electrical stuff, BAH, no one cares about them. And we all know the sheet metal rusts and fatigues... Castings are castings, semi-immortal... I urge you to submit your thoughts on hidden gems, several of which come quickly to mind. Not fan belts. Pictures would be nice, too!

Please submit your suggestion(s) for the Next Corvair Stud discussion, and I will see that the Editor does not smear it, and will give it a worthy study. Send e-mails to Izzy Guiffe, via the foolish sounding address [gearhead066@gmail.com](mailto:gearhead066@gmail.com).

Thus, I challenge the reader: What is your candidate for a worthy mechanical bit, something essential for the operation? I await your responses! - Izzy Guiffe

# News ZAP! More on Electric Corvairs

- Ken Schiffner

This is a bit of a retread regarding the Corvair's role in GM's early efforts in electric vehicle studies. Years ago, I was honored to interview the project leader of that group, Dr. Jalal Salihi\*.

Then, as now, battery storage capacity, size and weight were issues. Dr. Salihi's problem to solve, however, centered upon smoothly delivering that power as needed for vehicle propulsion, going, cruising, and stopping. The toolbox contained hardware that what was available at the time (1960's) and team member experience in similar areas of engineering. And Dr. Salihi's critical area of expertise?

## Elevators.

GM simply wanted to prove the driveline feasibility and develop the control methods so that the car performed as well or better than the typical "stock" Corvair assuming someday suitable batteries may be developed.

## The team?

Dr. Salihi headed a group made up of three (3) GM divisions. The **GM Research Laboratories** section focused on the control system and overall design. The **GM Engineering Department** was assigned the task of combining the hardware to convert a Corvair drive train into electric power. The **Delco Products Division** produced the special brushless AC electric motor.

## The toolbox?

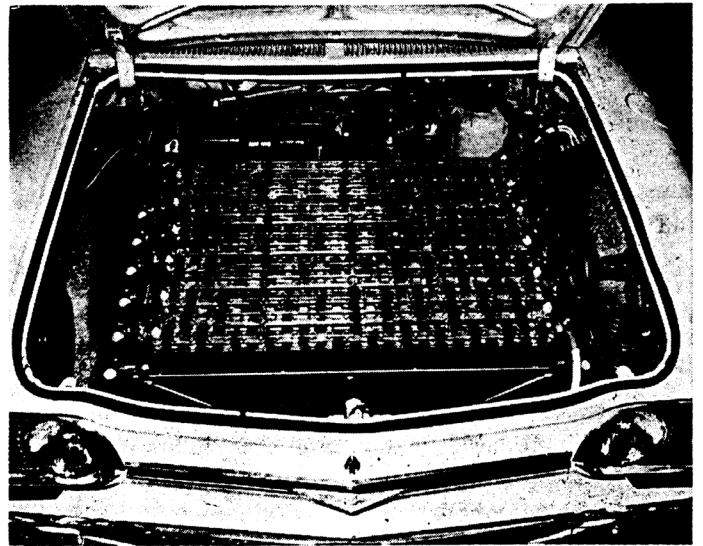
A Delco electric motor. An AC Motor.

Why an AC motor? Dr. Salihi explained that a brushless AC motor was lighter in weight and higher in torque than a DC motor. The heavy weight and maintenance issues of the brush type DC motor ruled it out. DC power is more easily controlled but is very wasteful of energy. Basically, the excess current must be dumped in the form of heat. With an AC motor, this heat loss can be minimized.

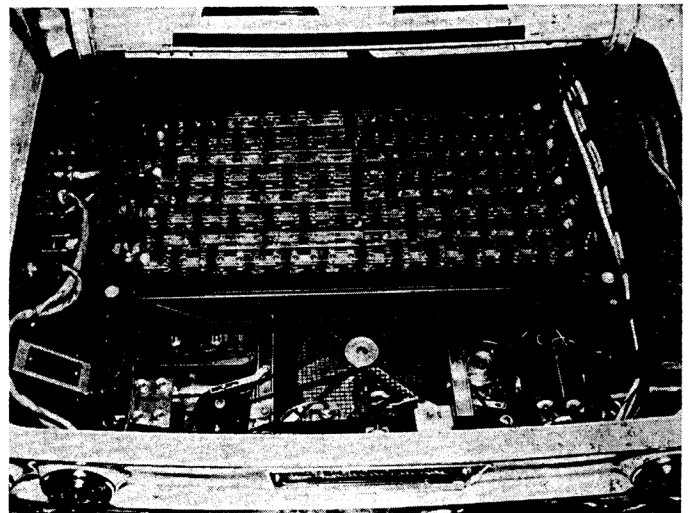
Delco developed a special oil cooled three phase AC motor that weighed only about 130 lbs. and put out 115 bhp from 3000 rpm to its maximum speed of about 13,000 (yikes!) rpm. Gear reduction was needed to slow the speed to mate with the standard Corvair transaxle though no gear changes were needed since the motor speed would be electrically controlled. Out with the gearbox and in with the gear reduction.

A 1964 Corvair Sedan was chosen for the test platform since it was small, relatively light, had an exceptionally stiff unitized body to support the weight of the batteries, had a simple drive train, and had room for batteries.

## Front (Trunk) Compartment of Electrovaair 1



## Rear (Engine) Compartment

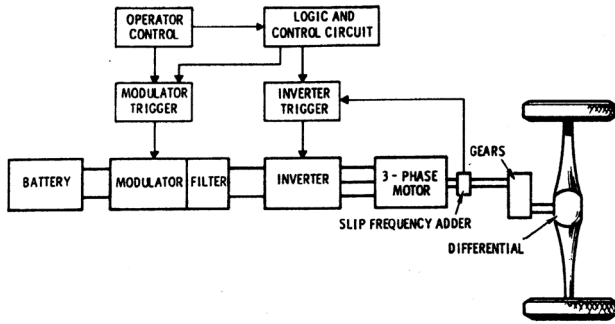


To provide the drivability, **frequency**, **voltage**, and **motor slip** had to be controlled at the same time. What was the similar motion known to exist at the time?

An **elevator**.



The basic components of the drive are shown in the following sketch.



The controls included the batteries, a modulator with triggering circuit, a filter, an inverter with its own triggering circuit, the three phase AC motor, and a slip frequency controller. A logic control circuit had to be developed to interpret the signals and an accelerator pedal operator control to provide the input signal. No regenerative braking was developed for Electroair 1. First things first!

In the 1960's, switching currents was done by thyristors. The transistor type switchgear able to manage the high currents required were in their infancy. Instead, they had to use thyristors (a sort of switchable diode) also called "silicon-controlled rectifiers." These thyristors could switch heavy currents (four hundred amps at eight hundred volts) but to do so, they themselves required a substantial switching signal. A small positive voltage must be supplied to them to get them to allow or prevent current flow. Part of the switchgear included capacitors and other regulators just to provide the switching signal for the seven (7) thyristors that were used.

### Inverter/Chopper Controls

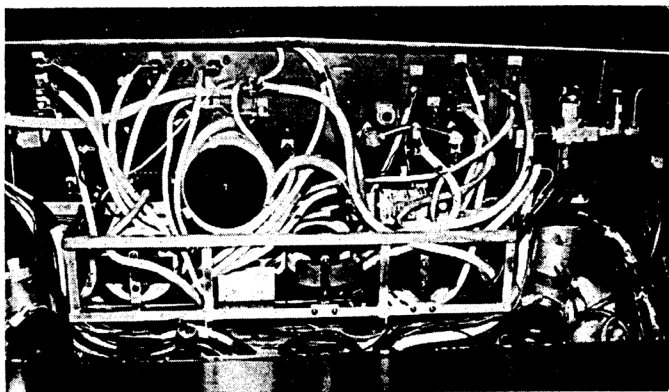
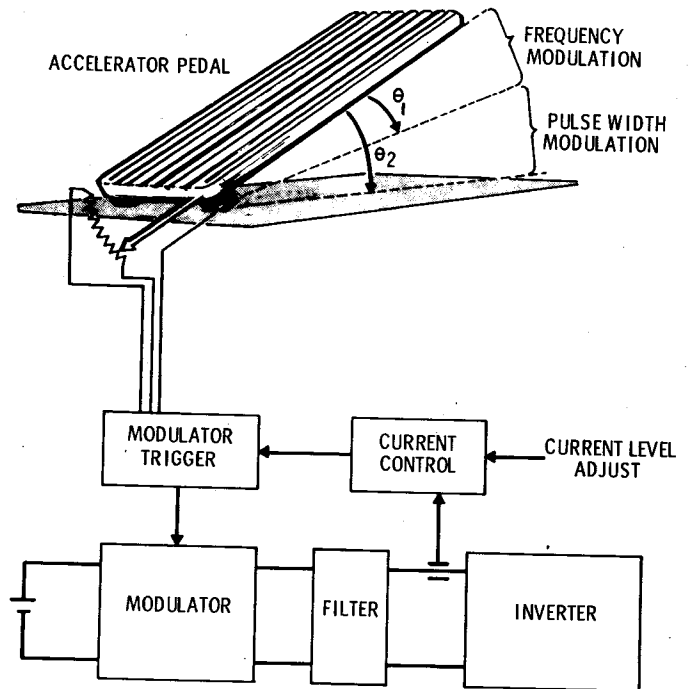


Fig. 12. Layout of modulator and inverter.

"The 450-volt battery voltage was transformed by the voltage modulator and filter", reported Dr. Salihi, "to a smoothly varying DC voltage applied to the inverter. The inverter changed the input DC voltage to three phase, variable frequency alternating voltage driving the induction motor."

A switching regulator was used to provide smooth control at high efficiency. It basically switches the voltages on and off rather than using a variable resistance that wastes energy by dumping heat. (Nobody likes a bumpy elevator or Electroair). The "chopper" chops the DC voltage into slices and the inverter inverts every other slice to produce a pseudo-sine wave (more accurately a square wave) of alternating current. The frequency and quality of these slices must be carefully regulated thus both voltage **AND** frequency are controlled. The controls allow the motor to "slip" under high acceleration demands. A potentiometer on the accelerator pedal provides a reference signal to interpret the driver's intentions (speed up, cruise, or slow down).



With these controls, it was proven possible to smoothly accelerate the vehicle from standstill to full speed with comparable performance to a Powerglide equipped gasoline engine model.

Electroair 1 showed that, to paraphrase Young Frankenstein, "It....**could**....**WORK!**"

Next time you board an elevator, maybe think of Dr. Salihi and team for the smooth ride and the Electroair 1.

# Tri-State Tune-Up

**Yes!** It's that time of year again, and you are invited to drive, drag, or trailer your Corvair to Schakey Acres **Sunday, April 28, 2024**. You can even drive a brand X, if necessary.

It's the same old place, a few minutes west of the bustling city of Sedalia, and we hope you'll join us for an afternoon of chat, dinking with Corvair stuff and avoiding household chores. And yes, we'll even have lunch!

**We open for Corvairs around noon, and you're welcome to hang until 4:00pm or thereabouts. Look for 7082 Piute Drive, Sedalia... and PPCC folk, you're welcome, too!**

**\* You might want to bring a folding chair or two, just to make sure you're not outstanding in our field!**

## Special Features!

**\* Taco Bar!** We'll be doing tortillas, nachos, ground beef tacos, with gringo fixins. Torch tastes (Dale!) might want to bring their own habanero sauce.

\* Water and lemonade provided, BYOB or weird drinks if you're so inclined. No charge, but keep your eye out for the handy RMC donation jug!

\* Free Corvair diagnosis with pro, amateur, and downright crazy opinions. No charge for heckling.

\* Parts consultation with various experts (and experts-in-training). Many late model example parts can be dredged up!

\* **No Progress - NUTSI** See Ringer #001, stalled by broken shoulder...

\* If nothing else, it's a great opportunity to BS with fellow Corvair folk

**As always, Think of this as Spring Cleaning for your Corvair...**

