



# *VISION*

**MAY 2014**



# **VEGAS VAIRS, CHAPTER 891 OF CORSA**

**MEETS AT 7:00 P.M.**

**THE 2ND WEDNESDAY OF EVERY MONTH AT:**

**DENNY'S RESTAURANT  
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LAS VEGAS, NV 89109 (734-1295)**

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**DUE BY FEBRUARY 1ST OF EACH YEAR.THEY MAY BE PAID AT THE MONTHLY MEETING OR  
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**928-768-6062**

## **VEGAS VAIRS - CORSA CHAPTER #891**

### **THE PREZ SEZ:**



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Another month flies by

We enjoyed having all of you over to our home for the picnic, we had a great turn out.

Thanks to everyone who helped out. Having that many Corvair's in our driveway looked great. We had one guest that saw all the Corvair's, it was a neighbor of our's Bryan he has a greenbrier. The tall 6'8" guest named Bill was the one I met at the St. Patricks day parade. He is building a Corvair with a LSI V8 motor.

My wife and I will be going to UT in May Chuck Hansen will be conducting the meetings while we are gone.

Paul Green

# WHAT'S GOIN' ON?

Our annual Spring picnic was a huge success. Thanks to our gracious hosts Paul and Lea Green who provided their beautiful home for the event. Eight Corvairs and a mix of other Chevrolets and other brands brought our members and guests to this fun and relaxing day of meeting and eating.

Harry Ransom and I took a few pictures of the event but those who attended will appreciate the day we spent, just before Easter. Also, Easter day is also Paul and Lea's 51<sup>st</sup> wedding anniversary and Lea's ??<sup>st</sup> birthday!!!



## **Activities:**

Run to the Border car show May 16th thru 18th at Buffalo Bills parking lot at Stateline Casino.

Matt N Jeff's swap meet May 10th 8am to noon 3588 S. Valley View Blvd.

Chili Fest & Car show Fri. May 23 Sat. May 24th at Circus circus hotel

9th Annual "Rockin in the Redrocks" Veterans Home Benefit Car Show

Sat, May 10th Tuacahn Ampitheater 1100 Tuacahn Dr. Ivins, UT

email: [desertodders@centurylink.net](mailto:desertodders@centurylink.net)

# **PISTON RINGS (part 1)**

## **For grooves #1&2**

### **Various types and how they work**

**By Bob Helt**

The subject of piston compression rings (used in grooves #1&2) , their design and application involves considerable analysis. So we will not be covering all aspects of them. In this paper we will be only investigating the torsional (or twisting) aspects of the two top piston rings caused by the inertial effects of the rapid piston movement and when they are not being influenced by any gas pressure inside the engine. In addition we will be looking at the various shapes and configurations of the compression rings typically used in Corvair engines.

First let's discuss the affects of gas pressure in an operating Corvair engine. In condition 1, during the intake stroke, the intake valve is open and the piston is on its downward motion. Outside of the reduced atmospheric pressure, within the cylinder there are no other gas pressures acting on the piston or rings. Note that this reduced pressure is commonly called a suction or vacuum that not only "sucks in" the fuel/air mixture, but also tends to suck oil up the cylinder walls and into the combustion chamber. Thus the piston rings are mainly affected by their inertia as the piston rapidly moves downward in the cylinder.

Condition 2 covers the three following strokes of compression, power and exhaust, where gas pressures will be working inside the engine and on the piston rings to various degrees. These gas pressures working on the piston rings will overcome the inertia effects present in Condition 1 and force the rings tightly against their grooves. In condition 2, the gas pressures also create blowby that tends to force any oil on the cylinder walls downward toward the crankcase.

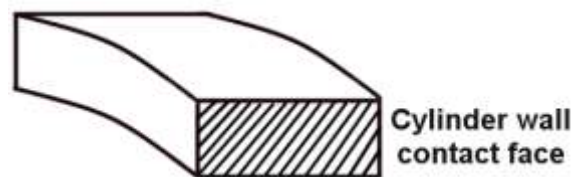
So we are now stating that the action of the two compression rings will be

different under these two operating conditions. During the intake stroke, with no gas pressure to affect the rings, they will be mainly affected by their inertia caused by the rapid downward movement of the piston. But with gas pressure, caused of course by compression and the ignition of the fuel/air mixture in the combustion chamber, there will be a flow of this gas pressure down the side of the piston and onto the top of, and behind of, the first compression ring. Escaping gas pressure past the top ring and thru the gap will cause the same but reduced gas pressure to affect the second ring in the same fashion. These pressures will force the rings down to the bottom of their grooves and outward against the cylinder wall, and will overcome any inertial forces on the rings.

So now we will look at what happens to these rings only during the intake stroke when there is only inertia, and no gas pressure, affecting them.

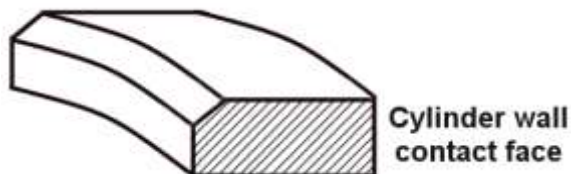
#### **TWISTING EFFECTS ON THE COMPRESSION RINGS**

Up to the 1930's, the compression rings all were made with a rectangular cross section such as shown in Figure 1.

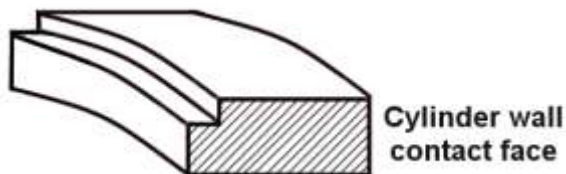


**Figure 1,**  
**A plain rectangular, no-twist compression ring used in the 1<sup>st</sup> or 2<sup>nd</sup> groove of older engines.**

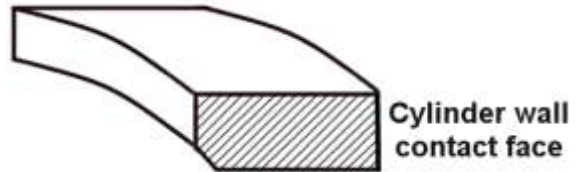
However, during this time, piston ring manufacturers discovered that by cutting off (beveling or chamfering) a small section of the rings (see Figures 2, 2A, 3, and 4) they became unbalanced by the inertia, caused by the downward motion of the piston during the intake stroke. This unbalance caused a twisting of the ring that altered its contact with the cylinder wall. By analyzing the direction and effect of this twisting, they discovered that improved ring oiling and oil control could be accomplished. This is what we will be discussing.



**Figure 2,**  
**A beveled positive-twist ring. Due to the bevel on the upper inside edge the inertia will cause a downward twist at the inside edge with a corresponding upward motion of the outside edge. This can be thought of as a counter-clockwise rotation around a central point within the cross section. Although it is shown on the ring cross section, the twisting occurs all around the ring. It is shown installed in Photos 6 and 7.**



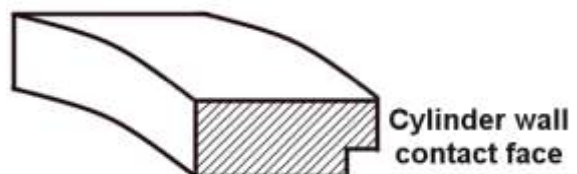
**Figure 2A,**  
**A notched positive-twist ring. Due to the notch on the upper inside edge the twisting will be similar to that described for Figure 2. Notching is a higher cost method of achieving this twist.**



**Figure 3,**  
**A beveled negative-twist ring. Due to the bevel on the lower inside edge the inertia will cause an upward twist at the inside edge with a corresponding downward motion of the outside edge. This can be thought of as a clockwise rotation around a central point within the cross section. Again, although it is shown on the ring cross section, the twisting occurs all around the ring. It is shown installed in Photo 5.**

Rings shown in Figures 2, 2A and 3 (and sometimes Figure 1) are commonly used in both the top compression ring position and also in the second position too, in Corvair engines. This will be discussed later.

In addition, a ring constructed as shown in Figure 4 is sometimes used, but only in the lower groove. Due to its reduced cylinder contact face, it is not used in the top ring position.



**Photo 4,**  
**A scraper-groove positive twist 2<sup>nd</sup> position ring. The groove cut in the lower outside edge causes the same twist as described for the ring in Figure 2. It is shown installed in Photo 7.**

(continued in July issue)

# Great Tool for Removing Drive Train

Fellow Corvair enthusiast, Bob Palmer, fabricated this engine cradle that sits on his floor jack.

He used 1-1/2" square T-slot aluminum extrusion as the framework bolting it to a square piece of 1/4" steel plate with a piece of round steel welded in the center of it to fit the hole in his floor jack when the lifting pad removed.

Any materials could be used to make the cradle. This is just what Bob has laying around. What a great concept that save lots of jacking the car up and down to remove the drive train.

Bob is also working on a cool rear motor mount for late model cars that uses an inexpensive modern GM mount as its cartridge. But, that's a story for another time. We'll keep you posted.



*Left: The finished cradle on the floor jack. Below: The cradle in place ready to support the Corvair drive train.*



*Left: A bottom view of the cradle showing the round steel bar welded in the center of the plate. The diameter of the bar needs to be able to fit into the hole in the floor jack.*

## Jonni has a New Ride



Long-time TCA member Jonni Berkman recently acquired this beautiful '65 Corsa convertible. The Berkman's lived in Tucson for several years and then moved to Colorado. Jonni presently lives in Brighton, Colorado and is also a member of Rocky Mountain CORSA and active in the Corvair Society of America.





# Corvaair Makes Magazine Cover

Once a local PCCA Corvaair, now residing in Arizona has made the cover of the Popular Hot Rodding magazine, April 2014 issue. The Corvaair is owned and driven by Jim Allen Jr. son of Bernie and Jim Allen of PCCA fame. Jim is a very good autocross driver and like his dad, maintains his Corvaairs in pristine condition. The below note is from Jim Allen Sr.

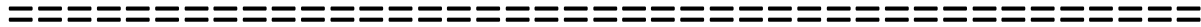


Bernie and I were in AZ last November. Jim jr and I spent Thursday, Friday and Saturday at the Good Guys car show. It is held at Westworld in Scottsdale. The same location that Barrett - Jackson uses. We did the garage tour on Thursday, and Jim entered the autocross on Fri. Sat autocross was the year end shootout for \$5000.00 first prize.

The Corvaair was good enough to gain entrance in the Sat. shootout. The top cars that qualified were 500+ hp Corvettes, Mustangs, etc. The top finishers from 2013 from all over the country. Jim knew he would only be running for fun. While he was running on Sat. a reporter from Popular Hot Rodding was taking pictures. He got Jim to sign a release so he could use one if they wanted to.

The April 2014 issue is out. They listed the season results, and all the winners. But the car they talked about was Jims Corvaair. There is a nice picture inside with a small write up, and the same picture is on the cover. Mike Myers told me about it when he got a copy. Jim found one in AZ. I have not been able to find one in Peoria. Jim did google it and brought up a picture of the cover.

We thought it was cool that they talked about all the fast cars, and they use a picture of a mostly stock 65 Corvaair.



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If interested in purchasing any of these books, please call me, Bob Helt, at 256-2008 or email me at Bobhelt@aol.com for delivery to one of the Vegas Vairs club meetings for no S&H charges.

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**WANTED: 1966 13" mag wheel covers**

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**'PLEASE CLIP THESE AND WHEN YOU SEE A CORVAIR PARKED, PLACE  
ONE UNDER THE WINDSHIELD WIPER**

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DID YOU KNOW THERE IS A CORVAIR CLUB IN LAS VEGAS?

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