



# the fifth wheel

NOVEMBER 2020

[HTTP://WWW.CORVAIR.ORG/CHAPTERS/LVCC](http://www.corvair.org/chapters/lvcc)

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## Next LVCC Teleconference - January!

As a matter of long-standing tradition, we refrain from having meetings during the holiday season because the 4th Wednesdays of November & December are so close to Thanksgiving, Christmas & Hanukkah. And so it is this year, too.

We'll be having our next teleconference on Wednesday, January 2, 2021. Meanwhile, we'll keep you entertained with our regular monthly newsletters. And as always, reach out to us if you need tech advice or have questions about keeping your Corvair alive.

The Fifth Wheel is published monthly by Lehigh Valley Corvair Club Inc. (LVCC), a chartered chapter for the Corvair Society of America. 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. For details, email our newsletter editor, Allan Lacki, [redbat01@verizon.net](mailto:redbat01@verizon.net).

## ***Ejector Cooled Engines. - The Story***

Tatra, based in the Czech Republic, manufactured cars with air-cooled engines for a long time, going all the way back to 1923. They began with the introduction of the Model T-11, designed by Hans Ledwinka. So it should be no surprise they figured a way to eliminate the engine cooling blower and thereby increase net horsepower. And they did it using...engine exhaust? *What?!*

Tatra developed a cooling system where the exhaust headers and engine shroud outlets are all routed to a cylindrical mixing chamber, also known as an “ejector”, where the exhaust gases, traveling at high velocity, create a partial vacuum that sucks cooling air out of the engine shroud. Julius Mackerle, Tatra’s chief engineer, named it the “ejector cooling system”.

Although no venturi is involved, the underlying theory is like a carburetor. It’s an application of Bernoulli’s principle, which states that an increase in the speed of a fluid occurs simultaneously with a decrease in static pressure; in other words, a partial vacuum. In our case, engine exhaust is fluid that causes the suction to occur.

It’s so simple. There are no moving parts. No fan belts, no blowers, and being air-cooled, none of the stuff associated with water-cooled engines. And by eliminating all that, Tatra picked up an extra twenty horsepower on its 2.5 liter V8s. (A good turbo-charger would have given a better boost but at the expense of higher stress on engine components).

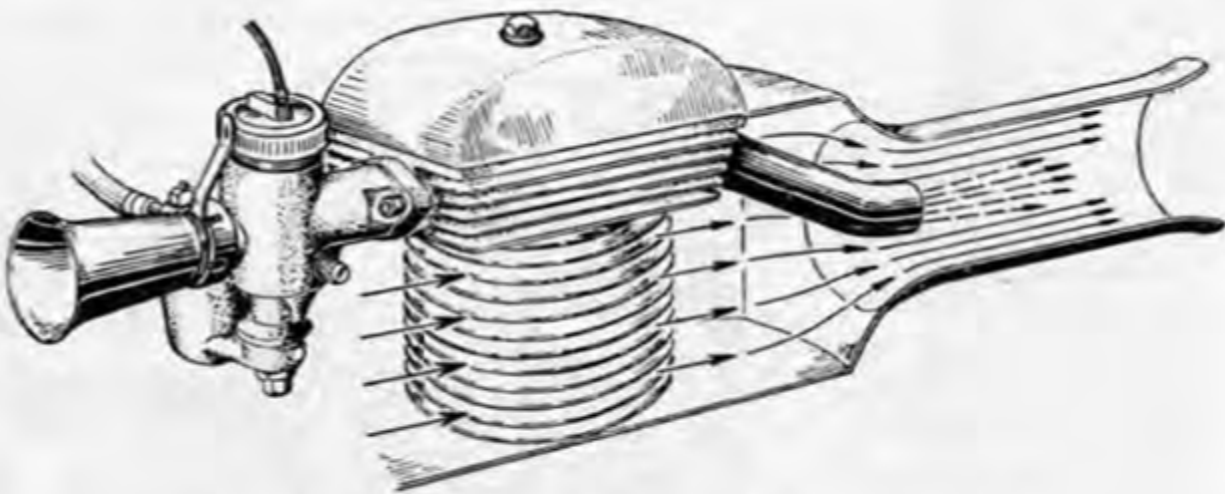
There are a couple of slight disadvantages. To maximize the cooling effect, huge megaphone outlets called “diffusers” must be affixed to the ejector chamber outlets. They take a lot of room. And Tatra never did figure a way to integrate mufflers into the system. So, between the megaphone-shaped diffusers and open exhaust, the engines are really, really loud! Fine for racing, but not on the street.

In 1961, a few years after he left Tatra, Mackerle authored a 476-page book named *Air-Cooled Motor Engines*. Originally written in Czech but translated into English, it covers just about every aspect of air-cooled engine design. It includes a chapter devoted to the ejector cooling system. It’s filled

with equations, diagrams and discussion about the theory, but several important basics stand out:

1. The proper length and diameter of the ejector chamber depends on the energy needed to draw cooling air across the cylinder heads and barrels. This, in turn, depends upon the density and thickness of the cooling fins on those components. Tatra experimented with ejector chambers of different diameters and telescoping lengths to explore the effects.
2. The efficiency of the ejector chamber is improved if the incoming exhaust nozzles – i.e. the header pipes outlets – are spread across the full diameter of the chamber’s inlet. This works much better than a single nozzle in the center. To achieve this effect, Tatra formed the nozzles into star-shaped outlets as illustrated on Page 4..
3. “Diffusers” – megaphone-shaped outlets, also help to increase the effectiveness of the ejector chambers. The diameter of each diffuser inlet should be the same as the diameter of the ejec-

*(Continued on page 5)*



**FIG. 135.** Diagrammatical illustration of ejector cooling.

# ***Ejector Cooled Engines. - The Cars***



Tatra 607-2 open-wheel racer. Circa 1957.



Tatra 607-2 chassis showing ejectors & diffusers



Tatra 603-B5. Marathon de la Route class winner



The diffusers are enormous!

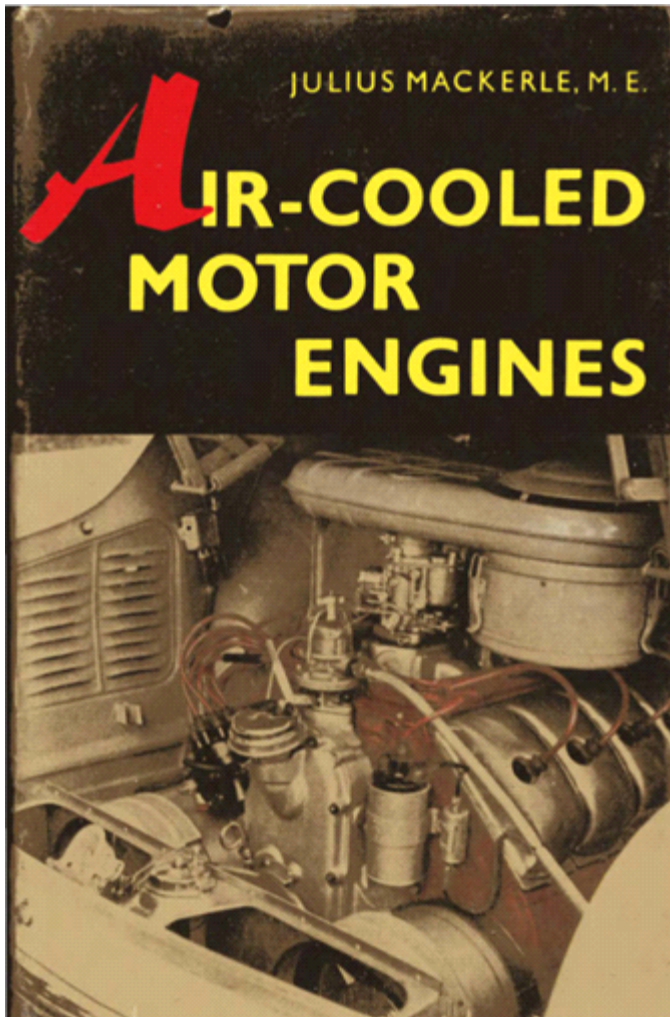


Test driver Jakub Rejlek explains how they work.

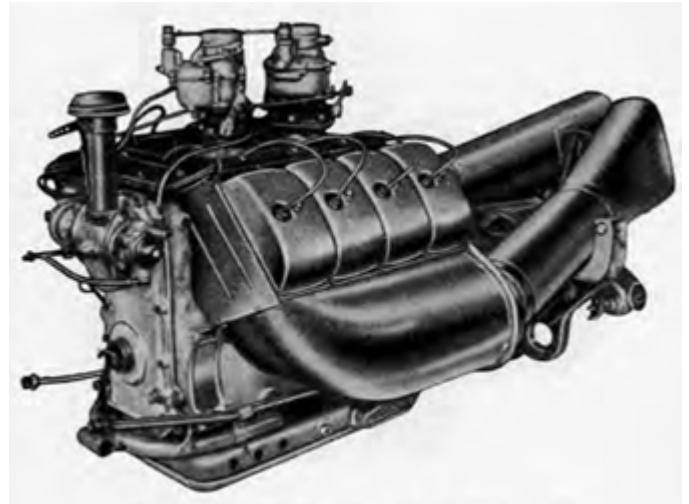


Side view. IECO trombones have nothing on these!.

## *Ejector Cooled Engines. - The Concept*



Everything you ever wanted to know about air-cooled engine design, including ejector cooling.



From Mackerle's book. Tatra V8 with ejectors



Above: This view shows the front of the engine with the ejector chambers removed. Note the star-shaped tail ends of the exhaust header pipes.

Left: Tatra V8 turned on its side. The silver pods cover the exhaust headers to retain heat for the ejector chambers. The actual ejector chambers are the short dark-gray cylindrical tubes. The long dark gray megaphones are the diffusers.

(Continued from page 2)

tor chamber outlet. And based on experimentation, the taper should be about 8 degrees. This explains why the diffusers on Tatra racing cars are so huge. (Refer to the photos and you will see!)

4. The exhaust piping from the cylinder head to the ejector chamber must be short and not exposed to excessive cooling to preserve the kinetic energy of the exhaust gas flow. On Tatra's V8 racing engines, the tubular exhaust headers are completely enclosed for this purpose.

Tatra installed an ejector cooling system on its open-wheel T607-2 Monopost racing car in the 1950s but the Communist Party never allowed it to compete outside Iron Curtain.

It wasn't until the 1960s that Tatra was allowed to strut its stuff in the West. And they chose to do it at the Marathon de la Route, an 84-hour endurance race at the Nürburgring track in Germany. That's eighty-four hours of high-speed racing on one of the most tortuous courses in the world. Think "LeMans times 3".

As can be imagined, the emphasis was on supreme reliability, not speed. Robust production cars, not fragile prototypes, were the choice for competing at the Marathon de la Route, and Tatra was no exception. It chose its T-603 luxury sedan - the only model in production at that time - as the basis for its entries.

T-603s competed in the Marathon de la Route in 1965, 1966 and 1967 and placed well not only in their class, but also in the overall standings. 1967 was extra special, for that is when Tatra debuted its ejector cooling system in this event. And it finished first in its class and 4<sup>th</sup> overall.

This particular car was found and restored about ten years ago and competed in the 2010 Goodwood Festival of Speed in 2010. You can listen to its mighty roar here: (The action begins

five minutes into the video)

<https://www.youtube.com/watch?v=HBiSJWAKSp4>

For those of you who are interested in vital statistics, the final arrangement of the T 603 ejector-cooled V8 engine is shown on Page 4. The engine has a 75 mm bore and 71 mm stroke. This equates to 2,500 cc or 150 cubic inches - about the size of an early Corvair engine. An ejector is mounted on each side of the engine; one per cylinder bank. The diameter of each ejector chamber is 5.5 inches (140 mm). The length, including the diffuser (megaphone) is 33.4 inches (850 mm). The discharge temperature from the ejector is 320 degrees F (160 °C) at full load. At 7,500 RPM and with a compression ratio of 12 : 1, the performance of the engine is 200 horsepower.

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### **LVCC October Teleconference Notes**

We held our October meeting on the 28th of the month using FreeConfer-

enceCall.com. Rich Greene, Randy Kohler, Al Lacki, Larry Lewis, Fred Scherzer and Jeff Strausser were on the line.

The teleconference lasted from 7:30 to 8:38 PM. FreeConferenceCall.com enables meeting participants to either call-in by telephone or log-in using a computer with both audio and video. The latter is much like Zoom. Most of us used FreeConferenceCall's video feature this time around.

Larry Lewis said there will be a car show at Silver Creek on Sunday, November 1st. It is replacing the usual Roll-Out at Riegelsville this year.

Jeff asked when Das Awkscht Fescht will be held in 2021. The dates are August 6, 7 and 8. Jeff also wanted to know which day LVCC members put their Corvairs on display. Rich Greene said most members only bring their Corvairs out on Sunday, which is Club Day for Das Awkscht Fescht. Randy Kohler makes arrangements every year for LVCC to have a section of the show field just for Corvairs on Club Day.

But Rich pointed out that some members put their cars on display on Friday, Saturday or all three days. Rich is one of those people.

Al Lacki mentioned that membership renewals are way down this year. He's thinking of sending renewal reminder letters to those people who have yet to renew. Randy suggested we email them first, before spending money on postage.

Although we were under the impression that Macungie Memorial Park was prohibiting car shows for the rest of the year, a cruise was held there last Saturday night. Rich and Fred Scherzer were there.

Larry Lewis said he went to a cruise in Harleysville this summer. It's about a half-mile south of where he lives.

(Continued on page 8)

# ***Corvair Crossword Puzzle. The Clues***

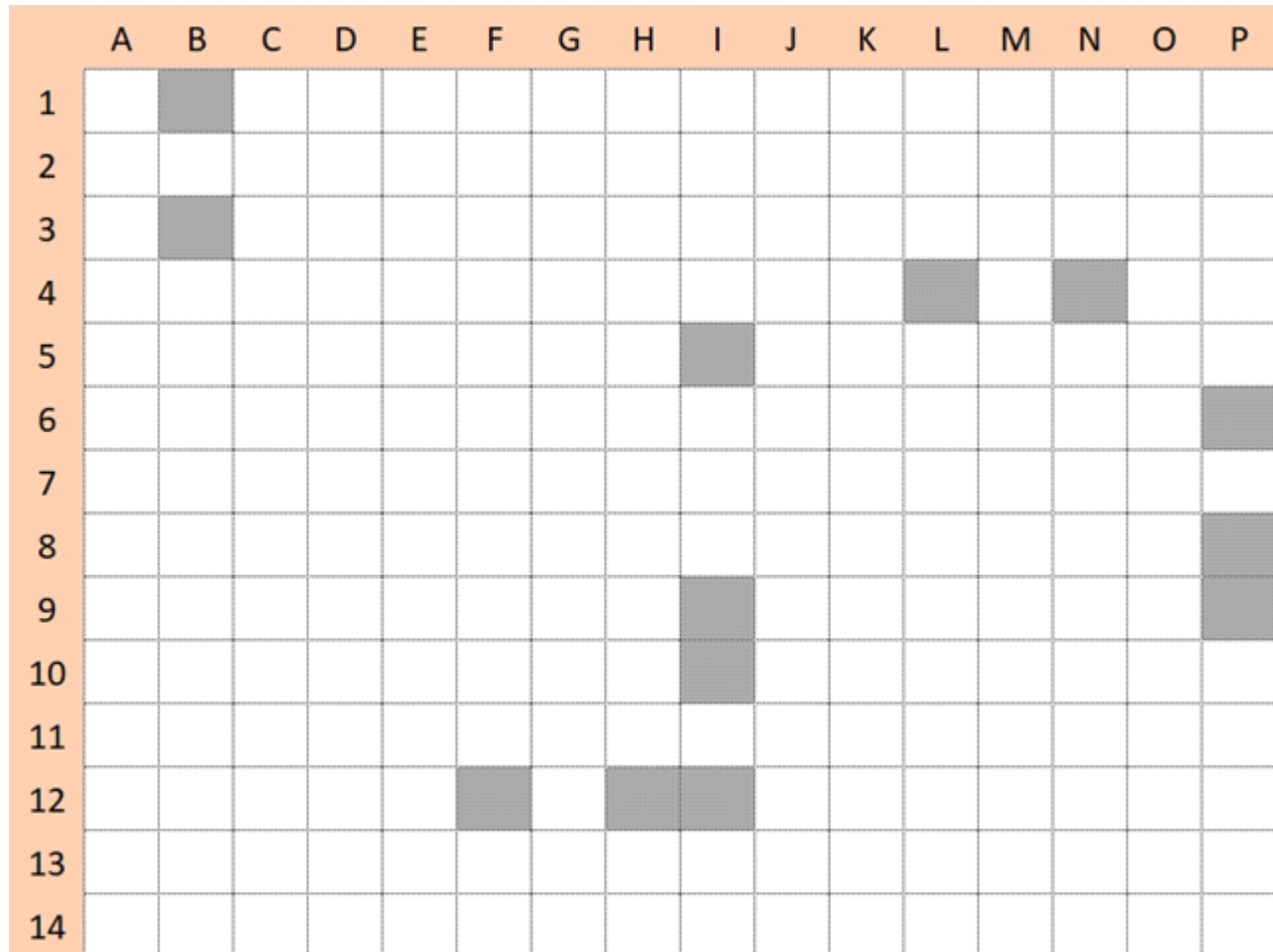
## **Across**

A2: Use this to broil a chicken or restore a Corvair  
 A4: Air-cooled German car  
 A11: J.C. Whitney sold these kinds of things  
 B10: Corvair \_\_\_\_\_ side  
 C:14: Be sure to check your tire \_\_\_\_\_  
 C6: The crankshaft is located inside the engine \_\_\_\_\_  
 D1: Semi \_\_\_\_\_ brake shoes  
 D3: Quadri-\_\_\_\_\_  
 D4: One of several Forward Control Corvairs  
 D7: Misnomer for a 4-seat convertible  
 D13: When you flip the fanbelt, the engine gets \_\_\_\_\_  
 F3: Drive your Corvair slowly around highway \_\_\_\_\_  
 G8: Tie rod \_\_\_\_\_  
 G13: Orientation of 1964 Corvair leaf spring  
 I6: Ad agency's name for the Corvair power train  
 J2: A top-of-the-line Buick  
 J5: Generator component  
 J8: Not west but \_\_\_\_\_  
 J12: A common option on Corvairs  
 K1: Steering \_\_\_\_\_  
 K7: Front engine Corvairs are sometimes seen here \_\_\_\_\_  
 K8: '67-69 bucket seats  
 K11: A type of wrench  
 K14: 1950s GM engineer who didn't like rear engine cars  
 L3: Autodromo Nazionale di \_\_\_\_\_  
 L9: Center of a wheel  
 L10: This kind of driving leads to trouble  
 M7: Drive a Corvair and put your money in the \_\_\_\_\_

## **Down**

A1: Sintered \_\_\_\_\_ (Think fuel filters)  
 A5: Corvairs don't need \_\_\_\_\_  
 A8: Air emissions come from \_\_\_\_\_  
 B4: Select a gear with this...  
 B11: Father of the Corvair  
 C1: Uni-\_\_\_\_\_ body  
 C6: Corvair car class  
 C12: Your Corvair might land on its \_\_\_\_\_  
 D4: Sound of an accident  
 D8: Differential gears make this nice sound  
 D10: Synchro-\_\_\_\_\_  
 E2: 1960 Horn \_\_\_\_\_  
 E7: Air \_\_\_\_\_ was used for emission control  
 E11: Brake \_\_\_\_\_  
 F7: Not mine, but \_\_\_\_\_  
 G4: An aluminum casting defect  
 G7: Motor City  
 H4: For radio reception  
 J1: Defunct Corvair hop-up parts vendor  
 J7: Often known for emitting odors  
 K1: CORSA is a \_\_\_\_\_  
 K2: Grease is a kind of \_\_\_\_\_  
 L6: Inside a steel tube  
 M2: Race in Italian  
 N6: 140 hp engines have four \_\_\_\_\_  
 O3: Grease fitting  
 O6: Rod \_\_\_\_\_  
 O11: Steering a Corvair is so \_\_\_\_\_  
 P3: Turbo-\_\_\_\_\_  
 P12: Turn on the ignition with your \_\_\_\_\_

## ***Corvair Crossword Puzzle. The Grid***



**WARNING! Don't try to solve this puzzle with an ink pen. You'll need a pencil with a BIG eraser!**

## ***Time to Pay Up! (A Late Dues Reminder)***

Our accounting year is from August 1 to July 31. Most LVCC members pay their annual dues either at Das Awkscht Fescht or during one of our normal monthly meetings. But Das Awkscht Fescht was cancelled this year and, due to COVID, we haven't resumed our normal meetings.

So, to pay-up, we need to mail our dues directly to Dick Weidner, our Secretary / Treasurer. Some of us have already done that. Some have not - at least not yet.

If you are in the latter category, you should have received a personalized email from me, Al Lacki, to remind you. So, check your email inbox. And please send your dues check in an envelope to LVCC Secretary-Treasurer Dick Weidner at 2304 Main Street, Northampton, PA 18067. We'd really appreciate that.

The price of LVCC membership remains very reasonable at \$15 per year, and if you are also a member of the Corvair Society of America, the rate drops even lower to \$10.

(Continued from page 5)

Aside from that, Larry hasn't had either of his Corvairs out during the summer.

Randy Kohler gave us an update on the Greenbrier formerly owned by Dennis Weaver. It was part of Dennis' collection and hadn't been on the street in several years. Bob Weideman purchased the Greenbrier and with assistance from Larry Asheuer and others, the Greenbrier is running now and being used by Bob on a regular basis. Bob had the engine in and out of the van three times in an attempt to make it run well.

Another one of Dennis Weaver's Corvairs is being brought up to snuff. It's a '65 or '66 Corvair 500 sedan with a Monza interior. Dennis used to show it at Das Awkscht Fescht every year. The body and interior are in fine condition, but it has oil leaks and a few other maladies. It's now in Dennis Stamm's possession and we're sure Dennis will have it in perfect running order soon.

The six of us on the call discussed whether we should either continue using FreeConferenceCall.com or switch to Zoom. We decided to stick with FreeConferenceCall.com for the time being, seeing as how we all got the hang of it now. We can revisit this decision in the future, of course.

Before we ended our teleconference, Rich Greene told us a story to remind us how fortunate we are to have knowledgeable vendors like Clark's Corvair Parts. Rich said he needed to replace the crankshaft pulley on his big-block Chevelle. He ordered one from a well-known Chevy parts vendor, but when he attempted to install it, it didn't fit.

So, he sent it back and tried a different vendor. And again, the pulley didn't fit. It was too deep causing an interference problem. Ugh! Rich also reinded everyone that it is great to belong to a club like LVCC with its many Corvair experts. As his email says: Corvairs R Cooler

LVCC has traditionally held it's meetings on the fourth Wednesday of every month and we've been following this tradition with our conference calls. Because these dates land us in the middle of the November and December holidays, we've always refrained from having meetings in those months. VP Fred Scherzer suggested we do the same this year with the teleconferences. Everybody agreed. And so, our next get-together will be in January. 'See you then, either in-person or on the computer screen!

## 'Tis the Season for... MICE! by Dave Steigauf, CPCC President

The weather is turning cold and the little furry creatures are looking for a nice warm winter home. I went to put the trash out and when I moved the can, a mouse took off, running out from behind it.

I haven't seen a mouse in my garage for years, nor any sign of one. But this year, I caught four mice in traps in two days. And that got me worried about the Corvair.

For years I have used a product called Fresh Cab in the stored cars and have never had a mouse in any of them. Thinking the mice were gone for good, I threw removed the packets of Fresh



## LVCC Officers

President: Dennis Stamm Phone: (610) 926-4723 Email: dmstamm@comcast.net  
 Vice Pres: Fred Scherzer Phone: (484) 948-5142 Email: jukeboxman44@gmail.com  
 Secretary / Treasurer: Richard Weidner. Phone: (610) 502-1414 Email: anythingvair@yahoo.com,  
 Newsletter & Website Editor: Allan Lacki. Phone: (610) 927-1583 Email: redbat01@verizon.net





Cab from my cars. Result: I am seeing mice again. So, the time has come to buy another box of Fresh Cab.

The product comes in what looks like large tea bags and looks and smells like potpourri. The critters don't like it and so they stay away. I purchased mine at a farm and tractor supply store. It is also readily available on line.

The cost is around \$17.00 for a box of four packets and they last through the winter in a car or closed garage. I used this in my Mustang which I stored at my daughters house. Her home is on the edge of a corn field and she always had many mice all winter long, but I've never had a mouse in the Mustang.

I would highly recommend this product and yes I had tried many of the home remedies, dryer sheets, moth balls etc.

**Removing Old Rusty Fuzzies from Your Late Series Corvair**

Removing window fuzzies on a late-series Corvair can be a chore. Generally, you want to lower the window and pry them out. But there is more to it if you want to do the job right.

Fuzzies are secured by clips that fit into slots near the top edge of the window well. The clips are not separate from the fuzzy strips, but instead, are permanently attached by little tabs that are bent-over the metal backing of the strip. Think of a tin-type toy and you'll know what I mean.

Before using any tools, roll the window down and run a strip of heavy masking tape along the window sill. Try to tuck the inner edge of the tape down into the seam between the door and the fuzzy strip backing. It's also a good idea to tape-up the upper edge of the window glass itself, which you should do before rolling the window down.

Unless they are really rotted badly, you can't simply remove a fuzzy strip out in



one sweeping motion. Instead, you must pull each clip out of its slot separately, going from one clip to the next, before pulling the strip up and out. That will keep you from chipping the window glass and gouging the paint.

There are a couple of alternatives to dislodging the clips from the slots. Some people use a simple flat-blade screw driver wrapped with tape. Others use thin paddles to open a gap between the fuzzy and the window well, and then yank the clips out with a steel hook.

Either way, beware. If you try to lift the clips straight-up, they won't move. You have to lift AND turn them inward (rotate) to get them out of the holes in the window well. Rotate the clips in towards the glass. And pull them slightly up as well. You have to start moving to the next one, while you're still working on the first. Otherwise, you will kink the fuzzy strip.

Occasionally, the clips will break off

from the fuzzy strip. The tabs that secure the clips to the strip will bend and release, so that the strip comes out of the window channel but the clips remain engaged in the slots. If that happens, use a flat [duck-bill] pair of pliers and pull the clips out of their slots.

Some fuzzies have a tiny Phillips-head screw at the end and of course that has to come out too.

To install your new fuzzies, start each clip in its respective slot. Rotate it in and push it down. Get all the clips started and then slowly bring them in a little at a time so the fuzzy doesn't get twisted in the process.

Would you like to see a video on how to do all this? Bill McColl of Chair City Corvair Center, North Carolina, posted this one on You Tube:

<https://www.youtube.com/watch?v=QB0QOPXMLHA>

**Puzzle Solution**

14	Y	Y	E	L	L	O	E	R	U	S	S	E	R	P	E	T
13	E	S	R	V	S	A	N	S	T	R	A	T	O	H	O	S
12	K	O	A	D	I	R	A	I	I	H	S	T	O	T	S	U
11	T	E	K	C	O	S	E	I	R	O	S	S	E	C	E	A
10	Y	K	S	K	R	I	S	T	A	R	P	R	A	M	A	H
9		C	B	U	H	A	N	A	N	T	U	N	P	E	X	
8		O	R	O	S	T	E	A	S	D	E	N	O	H	M	E
7		K	A	N	K	U	B	A	N	K	R	H	E	R	D	
6			K	C	A	K	P	A	C	I	E	S	E	I	T	
5				R	H	S	U	S	H	R	O	N	B	N	T	
4																
3																
2																
1																
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P

## Classified Ads



**For Sale:** New Parts: Brakes hoses, air filters, oil filters, tune-up parts, brake shoes, shocks, tail light lenses, gaskets, plugs, cables, choke pull offs, electrical switches, gas filters, caps, backup switches, suspension parts, engine bearings, valves, emblems, exhaust, turbo parts, patch panels, early bezels, head studs, 140 exhaust extractors, Y pipes, mufflers, fuzzies, clutch cables, lower bracket, heim joints, models, magazines, CORSA magazines, Hot Wheels, Racing Champions cars and much, much more. Contact Larry for pricing. Used Parts: Too many to list. Larry Asheuer Call 267-994-1569 or email: a-lcorvair@msn.com

**More information and many photos of the following cars can be seen at Bob Marlow's website, The Garage Key - Corvairs For Sale in and around New Jersey. Here is the address: <https://garagekey.blogspot.com/>**

**For Sale:** 1965 Corsa Turbo convertible being offered by an NJACE member near Monroe Township, New Jersey. A rare and desirable model, it has been estimated that fewer than 3,000 turbocharged Corsa convertibles were built for the 1965 model year, less than 1.2 percent of overall production for that year. The engine was rebuilt last winter and the car has a newly-rebuilt clutch and pressure plate. Asking \$16,500.00. Contact the seller at barondw@live.com.

**For Sale:** 1966 Monza Convertible. "Oscar" is a 1966 Monza convertible offered for sale near Mount Olive, New Jersey, with an asking price of just \$1,950. 95-hp, Powerglide, manual top. Has been parked for the past three years and is in need of TLC. The engine turns freely but is not running at present and no attempt has been made to start it. Contact the seller Larry Ashley at this email address: larryashley327@gmail.com

**For Sale:** 1964 Corvair Spyder Coupe. All original, great running condition. New badging, gas tank and brakes. Interior is complete, clean, and very nice for its age. Body is straight with some cosmetic issues as expected on a car of this age. Some surface rust underneath but nothing too concerning. Engine runs smooth and shifts well. Asking \$8,900 or best offer. The seller's name is Phil and his is a member of NJACE. Contact Phil at badnewz80@icloud.com

**For Sale:** 1969 Monza Convertible. #5210 out of 6000 Corvairs produced for the 1969 model year, and one of just 521 convertibles produced that year, this car is worth saving. Frost Green with a black interior, 110-hp engine and Powerglide automatic transmission. This car runs and moves, having just been awakened by Glenn, the current owner after decades of rest. Location: near Cinnaminson, New Jersey. Please note, there is no title. Price is \$1,500.00. Contact Glenn at greenwoodelectric@verizon.net

**For Sale:** 1966 Monza Convertible, air conditioned! Location: near Ithaca, New York. This car features rare and desirable factory options including air conditioning, tinted glass all around, AM/FM radio, rear antenna, headrests, power top, and wire wheel covers. Ermine White with a Bright Blue interior and a white convertible top. 110-hp engine, Powerglide automatic transmission. The car has 92,600 miles on the odometer. Recent new top motor and wiring harness. Beautiful condition. Asking \$15,000 or best offer. Contact the current owner, Bob at r.boynnton37@gmail.com

## Clark's Corvair Parts®

Our catalog lists over 15,000 parts for your Corvair. We carry engine parts, body panels, upholstery and much more! There are 1,000's of reproduced items available, pages of technical information and lots of other helpful hints.



Clark's Corvair Parts® 400 Mohawk Trail, Shelburne Falls, MA 01370  
(413)625-9776 www.corvair.com email: clarks@corvair.com

Clark's supports LVCC by donating gifts every year for our door prizes at Das Awkscht Fescht.