



INTAKE MANIFESTO

Official Publication of the Arizona Chapter, NCRS

Winter 2020 Issue

CHAIRMAN'S MESSAGE BY PHIL D'ALESSANDRO



Holiday Greetings and Best Wishes to Everyone! Hope everyone had the best of Holidays possible, stayed safe and avoided getting ill.

Well, it appears we are about to make it through the worst year in three quarters of a century (that's my limit to date)! I hope for everyone's sake and sanity, 2021 will be a vast improvement even if the swamp hasn't been drained. The cancellation of our Holiday Event also cancelled my five-minute Annual Meeting Report. Consequently, for your reading pleasure, I present it here. I will not go into detail in each of the reporting sections since other Board members have that responsibility.

What category of year did the Arizona Chapter have? Believe it or not, it was a very successful year measured against the requirements to achieve a 2020 Chapter Top-Flight Award. Of course, National cancelled the award for 2020 for good cause, you know, that invisible virus that has kept us all crossing off the "to do" list. Not sure about you, but my list is now quite short.

On to the Annual Report:

The Chapter held both the Spring and Fall Judging Events, and both were five-point events. The Spring just slightly better attended than the Fall. Additionally, our Judging Chairman and his Assistant (Gary Craig and David Peterson) were able to produce nine judging school events, including the first in the nation, virtual schools that were made available to all NCRS members. I'm sure Gary and David will fill in some details. Special thanks to Gary Mion for his garage, as well as David Peterson's AutoBox facility, and certainly Bill Calorico for his presentations. Other requirements for Chapter Top-Flight, such as a Tech Session and a "driver" were met. We will get our 2019 Top-Flight Award at the 2021 National Convention in Palm Springs.

David Barclay will provide the Financial Report, but while we are "down" on the operating account and not counting the saving account, we are fiscally sound while the upcoming Regional should replenish some of the operating funds. Under this financial area, we used \$600 as a donation to Harvest Compassion, the charity we designated in 2019, and I have

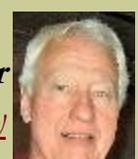
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completed paperwork for the National Matching funds program. Additionally, members donated an additional \$1,310, which allowed us to achieve more than the maximum matching funds allowed. Well done to those who gave up a latte or two! And just as an FYI, the Chapter donated almost three times more than any other Chapter in our Region. Gotta make you feel good, \$1,910!

As if I have not reminded everyone a few times, in 2021 we will hold a Regional Judging Event. Nothing new here, oh, but wait, lots new. The last Regional for NCRS was Florida 2020, and that's it! The 2021 Florida Judging Event was to be held in February, not any more due to, you guessed it, COVID 19. What's that mean for us? No Regional for 16 months! Just might be some pent-up anticipation. Arizona will be one of just two Regionals prior to the July National Convention. Members will have two opportunities to prepare. If a member comes to our Regional and fails to achieve a PV or a 97+ Top-Flight prior to the National, Cedar Rapids in June affords them the chance to try again but the time difference is ten weeks before the National versus five weeks. Just my thought but we might be swamped, meaning the Team will need everyone's assistance. Registration opens on January 2, 2021 and we should have an idea of response within six to eight weeks before panic sets in. As we have done in the past, we will just do the best we can do.

Wishing everyone the absolute best of the Holiday Season! Continue to stay safe until the "all clear" is sounded.

2021 AZ Chapter Board

	Chairman <u><i>Phil D'Alessandro</i></u>	
	Vice Chairman <u><i>Dave Talley</i></u>	
	Judging Chairman <u><i>Gary Craig</i></u>	
	Treasurer <u><i>Dave Barclay</i></u>	
	Membership <u><i>David Peterson</i></u>	
	Secretary <u><i>Brad Vigesaa</i></u>	
	Webmaster <i>Loren Peterson</i>	
	Newsletter Editor <u><i>Garry Mion</i></u>	
	Activites Chairman <u><i>JR Richards</i></u>	

NCRS (National Corvette Restorers Society) is a national organization open to all persons interested in the restoration, preservation, history, and enjoyment of Corvettes produced by the Chevrolet Motor Division of the General Motors Corporation. NCRS is not affiliated with Chevrolet or General Motors.

Membership in the Arizona Chapter of the NCRS is open to all members of the NCRS National Organization. Dues are \$20 per year. For membership information, please visit our website at www.arizonancrs.com.

NCRS registered marks used in the *"Intake Manifesto"* are NCRS Founders Award®, NCRS Master Judge Award®, NCRS Performance Verification Award®, NCRS Flight Award®, NCRS American Heritage AwardSM, and NCRS Sportsman Award®. All are registered with the United States Department of Commerce and Trademark Office.

The Arizona Chapter is proudly sponsored by the following businesses. We appreciate all that they do in support of our Chapter, so Please Support Them!



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2021 SCHEDULE OF EVENTS

Date	Activity & Contact Information
January 9	Heart of Ohio Chapter Virtual Judging School—Wheels Part 1 Online Registration
January 16	Judging School & Chapter Meeting— TBD
February 6	Heart of Ohio Chapter Virtual Judging School—Wheels Part 2 Online Registration
February 13	Concours In The Hills— Online Registration
March 5-6	Southern California Chapter Judging Meet—Anaheim, CA Online registration Opens Jan 15th
March 12-13	Southern Arizona Chapter Judging Meet—Tucson, AZ Online Registration
March 20	Judging School & Chapter Meeting—TBD
April 10	Chapter Driver—Bartlett Lake
April 17	Judging School & Chapter Meeting—TBD
May 11-16	Arizona Regional—We Ko Pa Resort & Casino, Fort McDowell Online Registration
June 10-12	Heartland Regional—Cedar Rapids Iowa
June 19	Judging School & Chapter Meeting—TBD
July 17-22	NCRS National Convention—Palm Springs, California Registration Opens Feb 1st
August 21	Judging School & Chapter Meeting—TBD
September 18	Judging School & Chapter Meeting—TBD
October 15-16	Fall Chapter Judging Meet—TBD
October 21-23	Lone Star Regional—Frisco, TX
November 20	Judging School and Chapter Meeting—TBD
December TBD	Chapter Holiday Party TBD

The above list of events are subject to change. Visit the [Chapter Website](#) for latest details

These events may be impacted by the Covid-19 social distancing guidelines put into effect by federal, state, and local agencies. Updates, as soon as we know them, will be sent out to chapter members.

Throughout 2020, a few chapters started holding online judging schools, and being a virtual event, attendance was accessible to all NCRS members. Our chapter held several such judging schools, including the very first one. Attendance was typically in the 75-110 range, and as long as you were registered and stayed for at least half the class, you would receive one judging point.

The Heart of Ohio Chapter was one Chapter that held these judging schools, and took it one step further by recording them. You can go their Chapter website [here](#) and find links to the school videos.

There are some online schools happening in January and February of 2021, and they have been noted in the calendar above. Visit Nationals news and events webpage [here](#) to stay informed on other possible online schools that may become available.

GET INVOLVED!

THROUGHOUT THE YEAR THE CLUB IS LOOKING TO HOLD TECHNICAL AND SOCIAL ACTIVITIES IN ADDITION TO OUR TRADITIONAL JUDGING ACTIVITIES.

IF YOU HAVE AN IDEA YOU THINK OTHER MEMBERS OF THE CLUB WOULD BE INTERESTED IN, PLEASE CONTACT A BOARD MEMBER TO DISCUSS IT.

FALL CHAPTER JUDGING MEET RECAP BY GARY CRAIG

On October 16 & 17th, the Arizona NCRS Chapter held another very successful Fall Chapter Judging Meet. Six great looking Corvettes were judged for Flight Judging. We had a 1954 Corvette owned by George Prentice being Flight Judged, for myself, this is the earliest Corvette that I have seen judged at our Chapter events since I started as a member. Usually we don't see too many 53-55 Corvettes come out for judging. Thanks George for bringing out your 54 Corvette. We had one of the newest Corvettes being judged come out, a 2004 owned by Mitch Guimarin. Thanks Mitch for bringing your 2004 out from California. Pete Bergmann had to scramble to get the judging manuals and judging sheets available for this car to be judged since they are not available yet from the NCRS store, Thanks Pete! We had four cars driven to the event for Sportsman display, a 1971, 2003, and two brand new 2020 Corvettes. Of course, one of the two 2020 is silver in color, owned by Suellyn Bennett. All cars from the Bennett family have to be silver with Gary bringing out for Flight Judging a fabulous 1967 L71 tri-power BB Corvette, of course painted in silver. A total of 41 members participated in the Chapter Meet.



This year, 2020, has been a challenge for NCRS Chapters to have Judging Meets or in-person Judging Schools due to Covid-19. Since March, most Chapters and all Regional and National Judging Meets have been cancelled. Our Chapter is one of a very small group of Chapters that were fortunate to actually hold a Chapter Judging meet this year after March. The restrictions from National regarding wearing masks and striving to maintain social distancing was evident and followed by all attendees. Thank you to all participants for following the National guidelines.



On Friday, we had a Judging School regarding Mid-Year Fan Clutches, given by Bill Calorico (Thank You Bill!), which was very instructive since the following day, we would be judging Mechanical on three C2 cars. We had 27 Chapter members attend this Judging School.



We could not have had such a successful Fall Chapter Meet without our volunteers as well as the fabulous Tabulators. Oh, and of course, we couldn't have a successful Chapter Meet without all of our judging

teams and team leaders, Garry Mion, David Peterson and Pete Bergmann. Thank you all for your time and efforts.



The following awards were presented:

Name	Year	Award
George Prentice	1954	2nd Flight
Foster Thomas	1964	Top Flight
Brenda Kalivianakis	1964	2nd Flight
Bob Swaback	1965	Top Flight
Gary Bennett	1967	Top Flight
Mitch Guimarin	2004	Top Flight



We also had for a second time a fabulous 1967 L71 4 Star Bowtie display car that Bob Swaback brought out. Bob, thanks for bringing both of your cars out to our event! This 67 L71 also has had a Duntov award presented at the 2019 National in Greenville, South Carolina so this car has great bones, 4 Star plus Duntov, a hard combination to obtain. One of our previous virtual Judging Schools regarding Bowtie Judging featured this car. Bob is working to obtain a 5 Star Bowtie award for this car at the 2021 Palm Spring National.



Thank You Sportsman Display:

Randy Okerlund	1971	Sportsman
Dana Richard	2003	Sportsman
Keith Kolerus	2020	Sportsman
Suellyn Bennett	2020	Sportsman

And finally, the location for this Chapter Judging Event was the Best! David Peterson coordinated the usage of three of the garages at the AutoBox as well as the main clubhouse, Thanks David for setting this up. This allowed us to practice

social distancing since we could have plenty of room between the cars with two cars per garage and these garages at the AutoBox are very large. Also, the space outside for the Sportsman cars as well as the tables for lunch was great. The Tabulators had an area that isolated them from the rest so we managed to fulfill the requirements from NCRS National for holding in-person Chapter Meets.

MINI JUDGING CIRCUIT RECAP BY GARY CRAIG

On November 21, the Arizona Chapter held a Chapter Meeting and an in-person Judging School regarding usage of CDCIF on three Corvettes, a 1957 C1 owned by Garry Eastwood, a 1966 C2 owned by Garry Mion, and a 1969 Shark owned by Gary Craig. This judging school event was held at the AutoBox garage of Greg Winn. Thank You Greg for allowing us to use your garage and 2 post lift.

Garry Mion's 1966 was lifted into the air to show the members the underside of a 2 Star Corvette. Garry showed the members the various items around the chassis with regards to CDCIF. Next, the beautiful 1957 of Garry Eastwood was shown to the members and Garry E. showed the members various items around the interior and exterior of his Corvette and how that judged during Flight Judging at National. Thank you Garry for bringing out your 1957 instead of your new 2020. Finally, the 1969 Shark of our Judging Chairman was shown to the members with various items around the engine compartment and exterior being shown and identified on how it judged at the AZ Regional. To end the school, all three cars were good representation of judging paint, where Garry M's 1966 showing original paint but with condition deductions, Garry E's 1957 showing restored paint done to NCRS standards with great condition and finally Gary C's 1969 showing way over-restored (high DOI) paint, door jams glossy with great condition. These three cars show the full gambit for how paint should be judged. The discussions were lively and everyone looked like they enjoyed the school.

UPCOMING JUDGING EVENTS BY GARY CRAIG

Arizona Chapter Judging School – January & March

On January 16 and March 20, the Arizona Chapter will hold a Chapter Judging School, topic and location to be determined. A flyer will be sent to all Chapter members for each School, please note these dates on your calendar.

Arizona Chapter Technical Session – February

On February 20, the Arizona Chapter will hold a Chapter Technical Session, topic and location to be determined. A flyer will be sent to all Chapter members for this Tech Session, please note this date on your calendar.

Arizona 2021 Regional

On May 13-15, 2021, the Arizona Chapter will be hosting the first NCRS Regional since the Covid-19 epidemic hit the country and cancelled all 2020 Regionals and National. This event will be held at the We-Ko-Pa Resort in Scottsdale, same location as the 2018 Arizona Regional. However, this location has been significantly changed in that a new parking structure has been built, a new casino area has been built and the old bingo hall and casino area will be available for our usage. Registrations is open and ready for your signup. Please mark your calendars!

MEMBERSHIP UPDATE BY DAVID PETERSON

First off, WHAT A YEAR! I'm sure everyone will join me in saying good riddance to 2020! This will definitely be the year we'd all like to forget. As we look forward to 2021 and gaining back some of our sanity and hopefully normal activities, we have a number of events planned. Our first one will be in mid-January and I believe the topic will be "Introduction to NCRS Judging." With a number of new members recently joining, it will be a good one to start the year off with. Following that, we are looking at having another meeting in February and March. The Southern Arizona Chapter will also be holding their spring judging event March 12-13 in Tucson. All of this will be a great lead up to our Regional at the We-Ko-Pa Casino Resort in May. Check the Arizona chapter website for event details. If I don't see you at an upcoming event, continue to stay healthy and safe and I look forward to seeing you sometime in the new year.

This is also the time of year to remind everyone to renew your chapter and national membership for 2021. If you've already done so, thank you for renewing! If not, what are you waiting for? Hurry up! In addition to renewing your chapter membership, it's very important to keep your national membership current because you can't be an active chapter member without a current national membership. If you have any questions about your status or need help with renewal, you can contact me at membership@ArizonaNCRS.com.

WELCOME TO THE ARIZONA CHAPTER – NCRS

Our current membership count stands at 147. The following individuals have recently joined our chapter. If you see them at upcoming events, please make an effort to introduce yourself and say hello.

John Ballard
Steve Loussaert

John Castrogiovanni
Jason McKee

Ronald Coleman
Gerald Ryder

Ralph Krueger

END OF YEAR TREASURY UPDATE BY DAVE BARCLAY

If your personal information (e.g. address, phone number) or email address has changed, please email those changes to me at treasurer@arizonancrs.com.

Our financial balances and inc/exp breakdown as of Dec 29, 2020 are:

Checking Account: \$990.03 Money Market Account: \$30,197.48

Income	
Charity Income	\$1300.00
Dues Received (2020 thru 2023)	\$2,235.10
Judging Income	\$1,721.18
Social	\$0.00
Interest Earned	\$4.27
Total	\$5260.55

Income:

Membership: 2020-2023 Dues

Judging: 2020 Spring Event

Interest Income: Money Market Account

Charity: Member Donations to Harvest Compassion Center

Expenses	
Charity Expenses	\$1,900.00
Membership Expenses	\$0.00
Judging Expenses	\$2,906.73
Miscellaneous Expenses	\$98.37
Social Expenses	\$541.61
Web Site	\$1033.50
2021 Regional Expenses	\$500.00
Total	\$6980.21

Expenses:

Membership:

Judging: Judging Event, Judging Materials, Event Refunds, Judging Schools, Tech Sessions

Miscellaneous Expenses: Administrative

Social: Christmas Party Centerpieces

Charity: Harvest Compassion Center

NEW OLD TOY FOR THE GARAGE BY GARRY MION

I'm at it again—just can't seem to stay off Craigslist or Offer Up looking to find a tool or piece of equipment that only applies to older vehicles. When I do find something, is it even within a reasonable distance (or small/light enough to ship). While I normally search for Sun test equipment, this was something different.

For a while I've been looking for an Ammco Safe-Arc grinding machine. Why? Well, for anyone with drum brakes, this piece of equipment was used to match a new set of shoes to a used drum. New brake shoes are built to match the original diameter/arch of the mating drum. Over time, the drum diameter increases due to wear and likely being turned. Since drum brakes have been out of service for several decades, one is hard pressed to find any shop that has the capability to re-arch shoes, and if the drum happens to be just slightly out of tolerance, they wouldn't even do it.



So happened that an Ammco Model 8000 came up on Offer UP just before Christmas, and it was in Mesa. It looked like it was mostly complete, and the guy was just looking to get a fair price for something who knew little about. The seller had purchased a Midas auto center back in August, and had several pieces of old equipment he didn't want to have anything to do with (or would replace with newer, more modern equipment).

Place was about 35min away, so I finished up what I was doing and headed over to the shop. It looked like a unit that was well used, but not abused. We did plug it in and the motor ran. Only thing missing was the collection bag, which are usually the one item that gets destroyed over time and not replace. Even if it was there, I can only image the number of asbestos-laden brake shoes that were cut using this machine, and not sure I'd want deal with such a bag. We came to an agreement on price, and with a little help from one of the tech's (things weighs 100+ lbs), it was in my car and I was headed home.

Over the past couple of days, the unit has been mostly dismantled and cleaned. Biggest issue was freeing things up that likely haven't been moved in years. While it wasn't out in the rain, it was around moisture and surfaces needed to be cleaned and polished.

Replacement parts are pretty hard to come by, so fortunately all the major forged components were in great shape. I should probably replace the bearings for the grinder drum, but I first have to figure out how to remove them (ordered a manual off of Ebay). The original grinding belts (picture at right) were a specific, open ended design, and of course they are not being manufactured anymore. There is a guy making a replacement kit that I believe utilizes a closed end abrasive belt along with a different retainer (bar) to hold the belt in position. Given the uniqueness of the setup, not sure I'm going find a belt that meets the dimensions of the drum and can be easily tensioned.



Hope to have the unit functional in a few weeks. I happen to have a test case, my '60, to try it out.

HARVEST COMPASSION DONATION BY PHIL D'ALESSANDRO

Our 2020 charity, Harvest Compassion, has been assisting families in the Phoenix area since 2011.

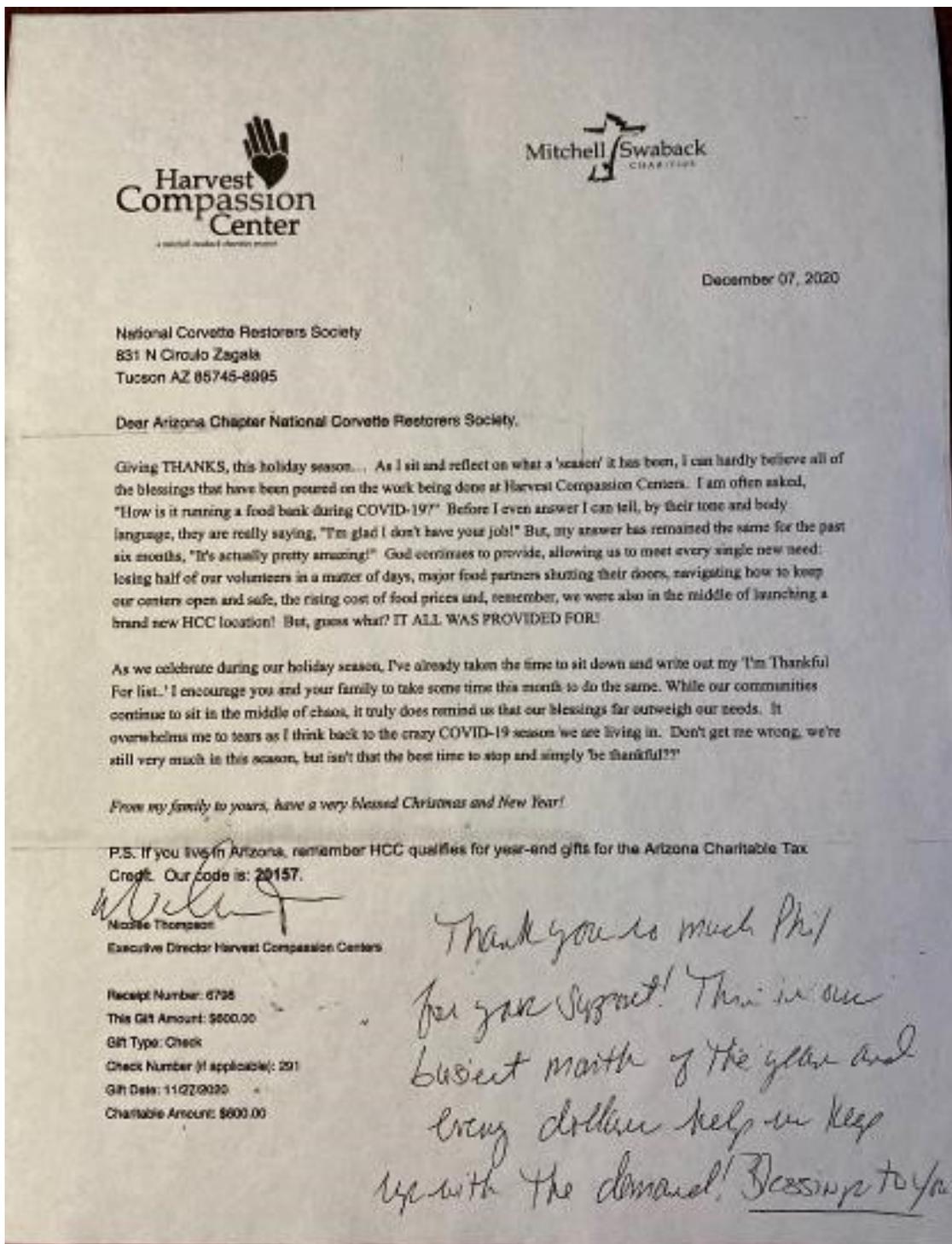
More than a local food bank, HCC welcomes clients to shop and choose their most needed food, hygiene, baby and clothing items all FREE OF CHARGE. There are no pre-qualifications and/or appointments needed.

HCC now has three locations, with a fourth about to open, throughout the valley which are open to the general public who are citizens of Arizona.

HCC is a qualifying organization under the Arizona Charitable Tax Credit program and a recognized organization of the Amazon Smile donation program.

In 2019, the 1,100 plus volunteers of HCC served 5,634 families, our neighbors who needed help.

As Chairman, I am most proud of the support our Chapter has provided to HCC and in return they recognize and appreciate our support.



WEBSITE UPDATE BY GEORGE RAY

Hello Everyone. The Arizona Chapter of the NCRS has a new Webmaster. Loren Peterson has stepped up to support our AZ Chapter website.

The website for our club is a bit unique in that we have contracted out the technical side of supporting the website. The hosting for the website, as well as the technical bits, is performed by a Automatt in Tucson. Our webmaster role is to collect, update, and organize information and then co-ordinate with Automatt to complete the changes for us.

I will remain available as Loren's backup through the regional event and/or as long as necessary.

We appreciate Loren's willingness to get involved in the operation of the chapter. He has experience with managing websites and has ideas on how to enhance the website for the benefit of our members.

SOLID AXLE STEERING BOX REBUILD BY NEWTON JOHNSON

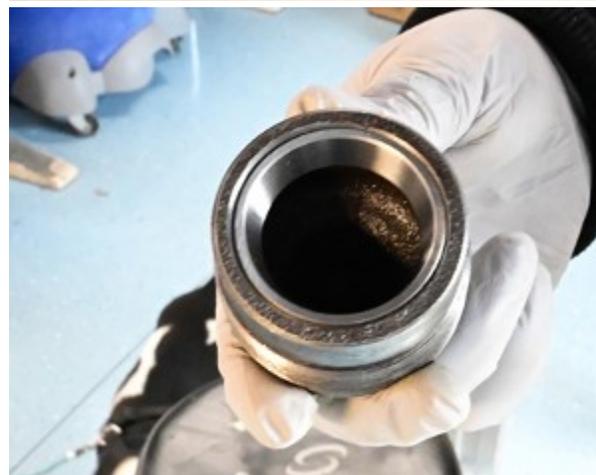
The steering box has been a curiosity for the 12 years I have owned my '61, serial number 6456. The tight spot for minimizing play at straight ahead was not aligned with straight ahead – it was off by about 30 degrees of steering wheel rotation. Also, over time the box would become stiff to turn. I would add grease and it would be good for another two years. And it was easier to turn left than to turn right. I was reluctant to attempt adjusting the steering box without knowing the condition of the internals. Every time I mentioned my experience to John Marsh he strongly encouraged me to pull the box and rebuild it - and he offered to help. John, Mike Mileskiewicz and Garry Mion have gained a wealth of experience by rebuilding several boxes. When I called John for help, he initially planned to come to my garage in Tucson. After talking it over with Mike and Garry, the recommendation was to bring the box and rebuild kit to Garry's garage as it would be convenient for Mike and Garry to help, and Garry has a press suitable for installing the new bearing races/bearings. It was easy to accept their generous offer to help.

Two parts kits are available: Steering Box Small Bearing and Seal Kit; and Steering Overhaul Kit. With a desire to have a "like new" steering box, I opted for the Steering Overhaul Kit: new worm gear pressed onto new steering shaft, new roller wheel and all bearings and races. I met John and Mike at Garry's garage. I took my camera with the intention of capturing key steps in the rebuild. I had expected to "help"; however, within a few minutes the guys had the old box disassembled and were removing the old races. This is when I realized that my "help" would only slow the progress, so I concentrated on photographing the rebuild.

The disassembly is quick and easy. Removing the races and needle bearing assemblies is straight forward if you have the appropriate tools and exert a lot of force.



The new races were relatively easy to install with Garry's press. Garry uses a relatively low force and a series of gentle taps to seat each race. As shown in the photos, Garry used both press tools and large sockets. Note that the race for the upper worm gear/column bearing was not replaced as it did not appear to be worn – all of the wear was at the lower end.



C1 STEERING BOX REBUILD (CON'T)



Mike and Garry compared measurements of the shaft resistance as John adjusted it to within factory specs. It was staked and then measured again to confirm that it was correctly set. [Note: detailed instructions for adjusting the steering box are provided in Reference (A); and alternative tools are identified in Reference (B).]



The new bearing/race sets worked fine with one major exception. The bearing/race assembly that turns with the roller wheel on the sector shaft would not turn when the housing bolt was tightened down. After numerous attempts John and Garry used their calipers to measure the new parts and compare to the old parts. The ball bearing were the same size as the originals. Thus, we were left to conclude that at least one race was not machined deep enough. An inspection of the old wheel revealed extreme wear – reusing it would have been a significant compromise. After talking through the

options John started measuring the shims that he had brought. After several attempts a combination of shims was found that would allow the roller wheel to roll freely without free play. Note that the shimmed bearing/race/wheel/shaft/assembly would not slide into the housing, thus some filing was required.



C1 STEERING BOX REBUILD (CON'T)

Some filing was also required on the end of the sector shaft as the end would not fit through the new needle bearing assembly in the side cover.



Once this adjustment was completed, the side cover was installed and the rebuild was complete.

All that remained was to fill the box with grease to the required level and to paint the box/steering column prior to installation into the car. It was a really good day; however, the extreme wear at the lower end of the steering shaft and significant wear on the roller wheel indicate this steering box should have been rebuilt many years ago. Without Gary's tools for removing and installing the races and needle bearing assemblies, I would have struggled. Without John's experience/insistence and his bag of shims, I may not have pursued a solution for the binding of the new roller wheel/bearing assembly. I am most appreciative of the help from John, Mike and Garry. Their willingness to share their knowledge and to help other C-1 Corvette owners is awesome!



Ref. (A). Instructions for maintenance and adjustment of the steering box are available in the Corvette Servicing Guide 1953-1962 (ST-12).

Ref. (B). Additional information and alternatives for the special tools identified in ST-12 are provided in Corvette Central Installation Instructions for 1953-1962 Corvette Steering Gear Overhaul by Joe Calcagno (included in the Steering Overhaul Kit).

EARLY C3 EMISSION CONTROL SYSTEMS BY TOM MCGOWAN

I was under my Stingray (on the lift) in order to investigate just a slight drop of oil on my floor. Referring to the picture below, note the brass nut on the left side of the transmission with the black wire going to it (arrow in picture). The black plug (shows as connected) came loose; Reason, it was a 1971 Combined Emissions Control (CEC) Unit, which has a circular stem. My car (picture below) is a 1972 and utilizes a Transmission Controlled Spark (TCS) unit, which has a blade connector. The TCS was utilized on the '70, '72 and '73 Stingrays (and possibly other years). They '71 utilized a CEC system for one year only. The purpose of the system was to reduce emissions in the lower forward gears. When my car was restored, the incorrect unit was installed, but I was able to get a new switch from Ecklers and all is good now.



I gathered the following information from research and from the Corvette Forum dating back to 2016:

The reason you see the TCS note in '71 is because the electrical drawing in the '71 AIM wasn't updated for the new system. Instead separate information was sent to the dealers' service departments.

TCS stands for Transmission Controlled Spark, while CEC stands for Combined Emissions Control. The 1971 CEC system combined the throttle position and vacuum advance controls into one solenoid mounted on the right front of the carburetor. In addition to the solenoid the system hardware consisted of:

- a temperature controlled switch in the right side head
- a transmission gear sensor in the transmission
- a delay timer relay and a reversing relay, both mounted on the left side of the firewall
- associated wiring in the engine harness

What is interesting is that every time that I tried describing the issue to knowledgeable people, they always thought that I was talking about the reverse light switch, which is just behind the TCS Switch.

The transmission switch in '71 was a Normally Closed (N.C.) switch, whereas the transmission switch on '70, '72 & '73 were Normally Open (N.O.), meaning that the switch when in Reverse, 1st or 2nd gear, the N.O. switch did not ground the wire as the N.C. switch would ground the wire. Thus, the terminal (round vs flat blade) differences in the transmission switches as you found.

On '71, with this N.C. transmission switch, Chevy added the reversing relay for the CEC system and it was not used in the TCS system.

The time delay relay in '72 was a N.O. switch, whereas the '71 & '73 was N.C.

It is quite interesting looking at the emission controls for '70 thru '73 (possibly further) in that each year, Chevy did something different. Currently, there is a NCRS forum topic on '72 vs '73 TCS and this thread may result in a change to the '73 operations. The latest '73 / '74 judging manual and PV manual state that the '73 does a time delay when shifting into 4th gear (looks like that statement is false) and the '72 model has this time delay when you shift into 4th gear (like your car should do). I suspect that the '73 / '74 judging manual was initially an extraction from '72 thinking that Chevy would do the same, which Chevy did not.

NEW DOESN'T MEAN IT'S TRUE BY TOM MCGOWAN

This just happened to me recently, and though it's almost resolved the case is still open

When I received my '72 Stingray Convertible about a month ago (post restoration), it drove OK, but I was troubled with two things:

- The left rear wheel spun off a Center Cap in the first mile, but the replacement cap wobbled
- The position of the steering wheel when driving in a straight line (see picture at right)

To resolve the first issue, I swapped the wheel with the one on the spare, which is an original (although ever so slightly bent). But it held the Center Cap as anticipated

Regarding the second issue, I had the car's alignment checked locally in Payson, and there were some tolerance issues related to Camber, Caster and Toe-in. I took those printed specifications and drove to Bullitt Automotive in Tempe, along with four new Coker Firestone FR70-15 tires that I just purchased. I had the tires swapped, balanced and the car aligned. Keep in mind that I drove the car 83 miles (down the hill) from Payson to Tempe, so I was familiar with some drift, but no real vibration.

All goes well at Bullitt Automotive and now I drive back to Payson (83 miles up the hill) and the car's steering wheel center post is now centered and the car drives much better, but it was vibrating the heck out of me. Keeping in mind that I just put on brand new Coker Radials I'm thinking, "Did Steven spin balance these tires?" Since the vibration was throughout the entire car, I figured something was amiss on the rear (if the vibration would have just been in the wheel I would have surmised it was a front tire issue). So, I take the car to a different alignment shop in Star Valley and ask them to check the balance on all four tires. Jeff (mechanic) calls me over and says, "Tom, put your hand on the tire while I rotate it slightly." It turns out that there was a spot on the surface touching aspect of the tire that was indented about the size of my hand!

I called Coker Tire immediately and they couldn't have been nicer. I paid for a new replacement tire to correct the issue and sent the faulty tire back for full credit with the FedEx code that COKER provided to me.

After replacing the faulty tire, I checked the car's handling, which was dramatically improved. Now my plan is to replace the slightly bent "spare" wheel (which is mounted on the right rear) and we'll take it one step at a time. Note that nobody, not ZIP Corvette, Eckler's or Coker has 15x8 '69 - '82 Silver Steel Wheels in stock due to COVID. So, I'll persevere until COKER can deliver at the new replacement Steel Wheel, and I'll move the slightly bent one back to the spare. It's hard to guess how many curbs and pot-holes those forty-eight year old original four steel wheels have hit. New wheels should prove to be an improvement in ride and handling.

The moral of the story is that you can't trust that just because something is new that it's going to resolve the issue you're having.

And, I'll swap the radial tires back to my original bias ply F70-15's for judging purposes.



HISTORY OF THE 427 BY PAUL MOREL

No three numbers get Corvette aficionados more excited than 427. The legendary big block became available in Corvette 1966 through 1969. 1970 saw an increase to 454 cubic inches. The big block was sunset after the 1974 model year. Government pollution and insurance regulation forced changes for the car makers. The horsepower era was over.

The 427 had its origin in the late fifties when Chevrolet needed more power in their trucks and large passenger cars. The 409 was introduced. It was originally rated 250 horsepower. In 1961, the special turbo thrust technology gave new life to the four barrel engine which now produced 340 horsepower. In 1963 the Mark II, a race built engine, increased cubic inches to 427. Mickey Thompson's 1963 Z-06 Corvettes ran this mystery engine. This was the prototype for what would become the 396ci/427ci/454ci Chevrolet big block.

We can thank the godfather of the Corvette, Zora Arkus Duntov, for the increase in HP.

Zora saw that Americans loved racing, especially street racing. The growing hot rod and drag racing communities were what convinced Zora that the Corvette needed more power. Power is what it got. In 1965 the Mark IV 396/425 HP big block was introduced. Cubic inches were increased in 1966 to 427.

The 427 came in many configurations.

- L36 390HP 4 barrel
- L68 400HP tri power
- L72 425HP 4 barrel
- L71 435HP tri power
- L88 430 HP 4 barrel
- L89 435 HP tri power
- ZL1 430 HP 4 barrel



The aluminum block L88 and ZL1 engines were known to far exceed their rated horsepower. These race specific engines were produced in very low numbers and today are amongst the most valuable Corvettes.

The 427 was last used in 1969.

The 427 moniker was brought back in 2006 with the Z-06, the small block LS7 produced 505 HP. The send off of the 427 was a 2013 60th anniversary 427 convertible collector edition. In building this car, Chevrolet paid homage to the high horsepower era of the late 60s with a stinger hood and 427 badging. At the time, chief engineer Tadge Juechter was asked if this would be the last Corvette with a 427, his answer was classic "I would buy one just to make sure".

Today we see the new 8th generation Corvette. I think about what Zora would have to say. His dream of a mid-engine is finally here. What lies ahead for the forthcoming C8 Z-06 and ZR1? Will we see 1000 HP?? Time will tell, but I'm sure the cubic inches will be less than 427

75-77 TIMJG BY KEITH KOLERUS

A little over a year ago the team was formed to prepare an update to the 1975-77 Technical Information Manual and Judging Guide (TIMJG). The previous version with the peach colored cover is over 20 years old. I had been part of the team that rewrote the 1973-74 TIMJG so agreed to help with the new 1975-77 manual. While many don't consider these to be the most desirable / collectible Corvettes, by sales volume they were among the most popular of all time. Why was that?

In the post war 1950s, the automotive industry was booming with remarkable achievements in styling and the introduction of the OHV V8 engine. As we moved into the 1960s the motors got bigger and more powerful. The transmissions and differentials kept up and the muscle car era was born. By the late 60s we saw over 400 horsepower ratings in ever lighter cars - they were a blast to drive. Then in 1970 Congress passed the Clean Air Act which required a 90 percent reduction in emissions from new automobiles by 1975. The EPA set standards for hydrocarbons (HC), carbon monoxide (CO), and nitrogen oxide (NOx). In 1972 EGR valves were developed to meet NOx standards. In 1973 the EPA issued regulations to gradually reduce lead in gasoline. Also in 1973 the first gas crisis hit and drivers had to wait in long lines to get gasoline. Some people were starting to think that big gas guzzling engines were not the way to go. In 1975 the Corporate Average Fuel Economy (CAFE) program established more stringent fuel economy standards beginning with 1975 model vehicles. Catalytic converters were installed and unleaded fuel was introduced to work with the catalytic converters.

Many of the cars we called fun - GTOs, Cudas, everything with a "big block", etc. disappeared. The factories were retooled for smaller lighter vehicles. GM had this plant in St. Louis that was set up to build a fiberglass sports car. So while so many "fun" cars disappeared from the market in the mid 70s, you could still buy a Corvette albeit with less horsepower. Sales of new Corvettes grew dramatically:

MODEL YEAR	PRODUCTION
1970	17136 (shortened due to strike)
1971	21801
1972	27004
1973	30464
1974	37502
1975	38465 (shortened due to strike)
1976	46558
1977	49213

It was typical for the factory to shut down for a couple weeks for the model changeover each year. Due to the pressure of high demand a change took place in 1976. To keep up with the demand, the process of "Rolling Model Changes" was put into place. New designs intended for the 1977 model were rolled out whenever parts arrived. As a result numerous changes designed for 1977 models can be found in late 1976 model cars. A few examples would be: the rear view mirror changed from mounted to the windshield header to mounted directly to the windshield and the mirror light was eliminated; the interior light location was changed from the back of the luggage area to the overhead bar between the t-tops; the visors were changed to a single mounting point at the windshield corners so that they could be swung to the side. These and many other changes may be found randomly in late 76 and early 77 model cars. Likewise late 77 model cars may have 78 model changes such as the ignition shielding.

ARIZONA CHAPTER

