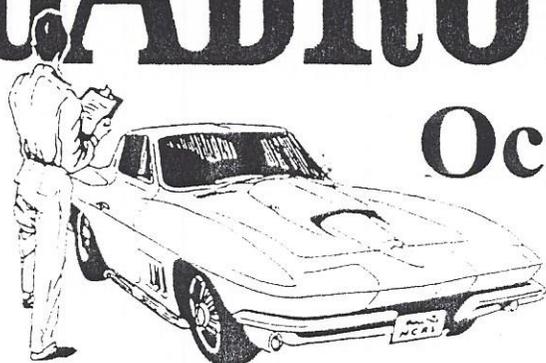


# ROADRUNNER

October, 2017



THE NEWSLETTER OF THE NEW MEXICO CHAPTER NCRS

## COMING EVENTS

- |     |       |   |
|-----|-------|---|
| Oct | 7     | <b>NCRS New Mexico Chapter Meeting, Chapter Judging Meet, Davis', Albuquerque</b>   |
| Oct | 15    | Rio Grande Corvette Club meeting & Event, 12:30 PM, Reliable Chevrolet, Albuquerque |
| Oct | 15    | Route 66 Rodders, Cruisin' at Fastino's, 2600 Juan Tabo NE, Albuquerque             |
| Oct | 15    | Pomona Swap Meet, LA County Fairplex, Pomona, CA                                    |
| Oct | 21    | Christian Rods & Customs, Montgomery & Juan Tabo NE, Albuquerque                    |
| Oct | 25    | NMCCC Meeting, Old Car Garage, 3232 Girard NE, 7:30 PM, Albuquerque                 |
| Oct | 26-28 | <b>NCRS Lone Star Regional, Frisco, TX</b>  |
| Nov | 11    | <b>NCRS New Mexico Chapter Meeting, Route 66 Highway Cleanup, Carnuel, NM</b>       |
| Nov | 12    | Rio Grande Corvette Club Meeting & Event, 12:30 PM, Reliable Chevrolet, Albuquerque |
| Nov | 18    | Christian Rods & Customs, Montgomery at Juan Tabo NE, Albuquerque                   |
| Nov | 19    | Route 66 Rodders, Cruisin' at Fastino's, 2600 Juan Tabo NE, Albuquerque             |
| Dec | 3     | Pomona Swap Meet, LA County Fairplex, Pomona, CA                                    |
| Dec | 9     | <b>NCRS New Mexico Chapter Meeting, Location TBA, Albuquerque</b>                   |
| Dec | 9     | <b>NCRS New Mexico Chapter Christmas Party, Location TBA, Albuquerque</b>           |
| Dec | 10    | Rio Grande Corvette Club Meeting Date, Details unknown (Christmas Party?)           |
| Dec | 16    | Christia Rods & Customs, Montgomery at Juan Tabo NE, Albuquerque                    |
| Dec | 17    | Route 66 Rodders, Cruisin' at Fastino's, 2600 Juan Tabo NE, Albuquerque             |

For further information on these and many other automotive events, please see <http://nmcarcouncil.org>

# NATIONAL CORVETTE RESTORERS SOCIETY

## NEW MEXICO CHAPTER

### MINUTES OF PROCEEDINGS

Saturday, September 9, 2017

The meeting was called to order by President, Billie Pyzel at 8:55 AM at the Cuban Cafe in Cuba, NM

There were no visitors or guests

Minutes: The minutes as published in the newsletter were approved after a motion and second by Bruce Masson and Tom Rostkowski

The treasurer reported that we have \$4,224.11 in our account. There was no buck in the box drawing. Eli said that we have about 34 paid members. We need to find more members

Under Judging, Dan Pyzel reported that a Chapter Judging Meet is planned for October. The tentative date is Saturday the 7<sup>th</sup> at Rex Davis' house in Corrales. It was mentioned that this will be during the Balloon Fiesta, and we may have trouble with traffic on Alameda. Suggestion was made to change the date. Those involved will be contacted to reach an equitable solution.

Under Old Business, those with September birthdays were saluted, but we didn't have the list. A brief review of the chapter's upcoming events was done. Billie mentioned again the concept of tours and happy hours. Dues are due, and the Route 66 Highway cleanup will be November 11<sup>th</sup>. Ongoing discussion continued to determine what we could offer members to increase participation. Short tours of nearby scenic attractions, lunch cruises and the like seemed to be of interest. More input from members is needed.

Under New Business the December meeting and Christmas party were mentioned. Elections are coming. Dan suggested that we have a board meeting. Billie pointed out that we have chapter apparel, and need to place an order for denim shirts.

There being no further business, the meeting was adjourned after a motion and second by Dan Pyzel and Bruce Masson.

We then drove back to Albuquerque...

Respectfully Submitted, Dan for Phil

## OCTOBER MEETING

The October meeting on the New Mexico Chapter, NCRS will be on Saturday, the 7<sup>th</sup>. The meeting will be at Rex Davis' House, which is at 1300 Cielo Vista del Sur in Corrales. To get there, go West from Corrales Road on Alameda to Cottonwood; Turn Right and go North one block to the "T" intersection, turn left and follow around as the road curves to the North. 1300 is on your left. PLEASE NOTE!!! Allow extra time or seek an alternate route to avoid balloon traffic!! This will be the site of the meeting and the Fall Chapter judging meet. PLEASE COME AND HELP – WE NEED JUDGES!!!

## ALSO OCTOBER

Don't forget the NCRS Lone Star Regional at Frisco, TX on the 26<sup>th</sup>, 27<sup>th</sup> and 28<sup>th</sup>. Always a good show.

## NOVEMBER

November's meeting date is the 11<sup>th</sup>, Veterans' Day. This will be the Fall Cleanup Session of Route 66 on NM Hwy 333 at Carnuel, NM.

## DECEMBER

In December we have the meeting and the Christmas Party. These will be on Saturday the 9<sup>th</sup> at a location to be announced. Please watch for further details.

## SEPTEMBER BIRTHDAYS

9/6 Diane Howey  
9/27 Bill Baker  
9/27 Henry Nunes  
9/27 Curt Richter  
9/30 Linda Davis

9/6 Mary Robb  
9/27 Jo Nail  
9/27 Gail Oliver  
9/29 Phil Dankworth  
Many Happy Returns!!!

## OCTOBER BIRTHDAYS

10/1 Jay Goatcher  
Many

10/16 Pam Gibbons  
Happy

10/29 Eli Maestas  
Returns

**Join Us for the World Famous, Spectacular,  
Lone Star Regional in Frisco, Texas  
October 26-28, 2017**



# 2017 Lone Star Regional – Frisco (Dallas), TX

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Embassy Suites Dallas / Frisco Hotel & Convention Center – October 26-28,  
2017

## SCHEDULE OF EVENTS (Updated 07/30/2017)

### Wednesday October 25, 2017

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No Organized Activities Planned  
Overnight Event Security

6:00PM - 6:00AM

### Thursday October 26, 2017

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10:00 AM - 5:00 PM	Event Registration Desk Open
12:15 PM - 5:30 PM	Performance Verification by appointment with national team leader
12:15 PM - 5:30 PM	Operations Check & Car Placement in Convention Center All Cars Must Be Placed by 5:30 PM ( <b>No Exceptions</b> )
4:00 PM - 5:00 PM	Judging Seminar
6:00 PM - 7:30 PM	Welcome Reception: JCP Club at the Dr. Pepper Ballpark
6:00 PM - 6:00 AM	Overnight Security

### Friday October 27, 2017

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7:00 AM - 8:00 AM	Judges Breakfast
8:00 AM & 8:15 AM	Judges Meeting Followed by Owners Meeting (for Friday Judging Classes)
8:30 AM - 5:00 PM	Flight Judging 53-55, 61-62, 63-64, 65, 67, 68-69, 73-77, 90-96
9:00 AM - 3:00 PM	Advanced Judging School - Morning and Afternoon Sessions
9:00 AM - 4:00 PM	General Admission, Peoples Choice Voting, Silent Auction (Proceeds to Charity)
3:00 PM - 4:00 PM	Technical Session (Subject & Speaker TBA)
5:00 PM - 6:00 PM	Texas Chapter Membership Meeting & Election
6:00PM - 6:00AM	Overnight Event Security

### Saturday October, 28 2017

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7:00AM - 8:00AM	Judges Breakfast
8:00 AM & 8:15 AM	Judges Meeting Followed by Owners Meeting (for Saturday Judging Classes)
8:30 AM - 4:00 PM	Flight Judging: 56-57, 58-60, 66, 70-72, 78-82, 84-89, 97-99
9:00 AM - 3:00 PM	Advanced Judging School - Morning and Afternoon Sessions
9:00 AM - 3:00 PM	General Admission, Peoples Choice Voting, Silent Auction (Proceeds to Charity)
4:00 PM (Estimated)	Cars Released after Judging is Finished
6:00 PM - 7:00 PM	Social Hour
7:00 PM - 9:00 PM	Awards Banquet

#### Special notes\*

Event security provided Wednesday, Thursday, Friday, & Saturday nights 6:00PM - 6:00AM.

For a printable copy of this page click [HERE](#)

**EVENT REGISTRATION** (Registration Link Available at [www.ncrstexas.org](http://www.ncrstexas.org))

Online registration & payment using the NCRS Event Registration System is preferred. Use your Technical Discussion Board ID & password. Pay online using PayPal or your Credit Card.  
Online event registration: [www.ncrs.org](http://www.ncrs.org) then Services > Coming Events > Event Registration.

**HOST HOTEL INFORMATION:** (Registration Link Available at [www.ncrstexas.org](http://www.ncrstexas.org))

Host Hotel: Embassy Suites Dallas – Frisco / Hotel, Convention Center & Spa, 7600 John Q. Hammons Drive, Frisco, TX 75034 Telephone: (800) 921-1443. Mention "National Corvette Restorers group code NRS" for event rate (\$126). Block held until Oct. 5, 2017 Online hotel registration: [Here](#)

**Alternate Hotel Information:** Hilton Garden Inn Frisco, 7550 Gaylord Parkway, Frisco, TX 75034 Telephone: (469) 362-8485. Mention "National Corvette Restorers Society group code NCRS17" for event rate (\$125).

Online hotel reservations [Here](#)

**REGISTRATION AND JUDGING INFORMATION**

To register a Corvette for judging or display, please include proof of ownership and current insurance WITH this registration and again at the event. All Corvettes registered for Flight Judging, Founders, Bowtie, McClellan, and Special Interest Display will be parked inside and must be pre-registered. Sportsman & Performance Verification cars must be pre-registered and will be parked inside on a space available basis. All inside cars must be in place by 5:30 PM, Thursday October 26 and must remain on display in their designated place until after judging is completed on Saturday. Each Flight division is limited and acceptance will be based on date of registration and receipt of payment. A single Corvette may not be entered for multiple activities at the same event. You cannot enter a car for Flight Judging and Sportsman or Performance Verification and Sportsman, etc. Cars registered for Sportsman, Bowtie, Duntov or Special Interest Display will not be judged. Pre-registration deadline is September 30, 2017. Registrations after September 30 will be assessed a late fee. Wear your event name badge at all times. Name badges will be required for admittance to all event activities. All NCRS members must be registered and cannot attend as a Guest. Security & Secured parking for all registered cars and trailers will be available Wednesday through Saturday nights; 6PM – 6AM. Event FAQs, logistics, & trailer parking information available on the Texas Chapter website at [www.ncrstexas.org](http://www.ncrstexas.org). Fire Marshall regulations require that all cars inside the Convention Center have battery disconnects, gas tanks less than ¼ full, & gas caps taped.

# A Bowtie Journey

By Mike Johnson

I have not been an NCRS member for very long, only since 2009. But since I joined, I have been trying as many things as I can to be active and learn about Corvettes. First there was preparing and putting a C2 through flight judging, then another, and then engaging in judging and attending seminars at chapter, regional and national events. Then it was Performance Verification and Duntov judging for my '64.

After that experience, I wanted to learn more and get involved in presenting a car for Bowtie judging. Getting a Bowtie award seemed to be a very difficult thing. Unlike flight judging, Duntov, etc., you can't "make" a Bowtie car, it has to be born and preserved that way. The judging is extremely rigorous and strict, not just original parts, but the parts must be original to that car and not touched, removed, restored, etc. It has to be 80-85% original, untouched in all four categories (4 Stars) of chassis, mechanical, interior, and exterior. All this rigor is necessary since these cars are benchmarks for judges to use in flight judging and to update and expand the TIM&JGs with new findings and facts on factory originality.

But finding a car that could qualify as a Bowtie candidate seemed like a daunting task. Where do you find such a well preserved, pristine example? No doubt it needed to be low mileage, but also well preserved. I decided on searching for an '81. Why an '81?

My first new Corvette was a tu-tone, beige/bronze '81. I knew nothing about Corvettes at that time except it was a beautiful car and I wanted a new Corvette after owning a beat up '70 for several years that had no A/C (I lived in Houston, Texas at the time). This new car had every power feature and every comfort I could ever want. I had it for 5 years, as I moved from Texas, to Colorado, to Massachusetts, to California, and back to Texas. Finally had to sell it as my wife and I started a family, and it had no room for that. I vowed to get one again someday, and my wife reminded me now is someday. Now was my chance to find one, so the search began in 2015 just after the Denver NCRS National.

The internet was my primary resource, and I found several possibilities. To cut down on my travel time, I asked for detailed pictures to narrow the search before any travel for inspection. I also had to get the NCRS TIM&JG for the '81 Corvette, since I knew much about '64s, but next to nothing about '81s for technical judging. I also asked many experienced NCRS members who had identified and made it through Bowtie judging with their cars. I finally found and inspected a car on consignment at a Georgia dealer. This looked to be the one, so we made a deal, and I became the second owner of a car with 5,000 miles originally delivered in New Hampshire and pampered like a baby by the original owner.

It was a beautiful claret over dark claret tu-tone, with a medium red leather interior. It was the 2509<sup>th</sup> car made at the new Bowling Green Corvette plant (VIN numbering started over with #1 when cars were made at Bowling Green in '81), and had the original tires, wheels, belts, hoses, shocks, etc., and even battery (dead but included), from the factory. It had already won the AACA Senior Award for originality, but now it was time to get it ready for the toughest NCRS judging.

Getting it ready was really easy, compared to flight, PV, and Duntov judging. All I could do really was to clean it really, really well. So with a big container of Simple Green, she went up on the lift for a thorough, but very careful cleaning. All factory inspection and other marks, tags, decals, stickers, as well as original finishes on parts, needed to be preserved. I found a couple of the dreaded wrench marks on a few bolts, so those would lead to deductions, but there were very few.

I then talked to the '78-'82 team lead (Brian Pearce) about taking it through judging, he recommended I take it to the Arizona Chapter, so Tom Barr could get a good look at it and advise on the potential. I did that in March of 2016 in Tucson, and also became a member of the Arizona Chapter, and then the Southern Arizona Chapter when it was formed. The car received a Top Flight, as well as Ladies Choice winner. Tom gave me great advice on the car and I really appreciate his help in giving me the confidence to forge ahead toward my goal.

Next it went to the Texas Regional in Oct. 2016, for judging and Bowtie signoff. Brian's team judged it there and he was most confident of it being a solid Bowtie candidate. So it was off to the San Antonio National in July, where it was given the rigorous inspection and judging, some on a lift, and was awarded the Bowtie Award. Mission accomplished there. But, I do also want to get the 5<sup>th</sup> Star, which involves using it for display and teaching at a regional or national (which was done in San Antonio), plus 3 chapter events, and then returning to a National for final award of the 5<sup>th</sup> Star. In fact, I plan to drive the car to Las Vegas for that award. In all NCRS history, there has been only one other '81 Corvette to win a 5 Star Bowtie, so I want mine to be the second. It has been a rewarding learning experience, and I look forward to putting some miles on this car now and enjoying the ride.

Story by:  
Michael Johnson #49879





Body number written on passenger side outside foot well of body matches VIN



Bowtie judging at National using lift



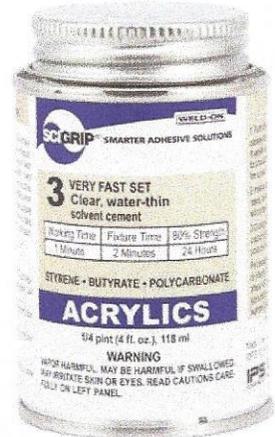
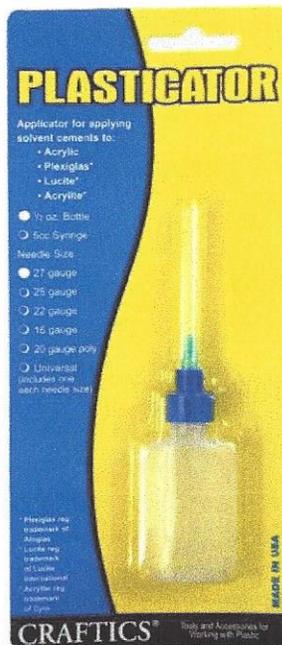
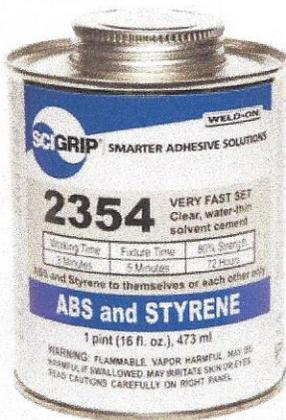
Receiving Bowtie Award from Dave Hill and Dave McLellan at National

# Plastic Repair

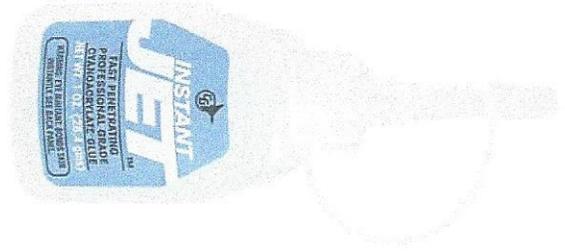
By Brian Schoenfish

Plastic parts you ask? Yes, our vintage corvettes have plastic parts, particularly in the interior (I have not personally taken apart a C1 or C2, but I know from experience that C3's have many plastic interior components). Most of them are covered with vinyl, but some are just painted plastic parts. Kick panels, defroster vents, and park brake consoles to name a few. Some of these parts are easily cracked if care is not taken during disassembly and reassembly. Parts that are not covered in vinyl are easily repairable if they are not completely shattered. Vinyl covered parts can also be repaired, but there may still be a defect visible if the vinyl has become separated from the parent plastic part.

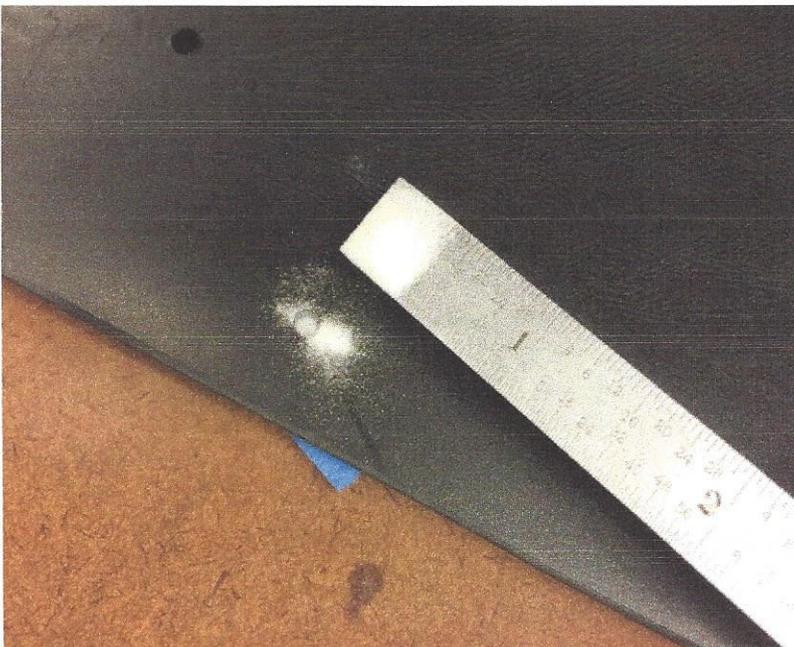
**Solvent Bonds:** The best method, if possible, is to use a solvent to weld the plastic back together. Solvents melt the plastic and fuse it back together. This method will only work if the break is a clean break and the parts will easily fit back together with a tight joint. I have used Weld On 3 for this in the past but 2354 is probably a better choice. In a pinch you can also try MEK, which you may already have in your shop. Put the pieces tightly together and use a solvent applicator (a small brush will also work) to wick the solvent between the two parts, and allow the assembly to dry overnight. If clearance is available I recommend bonding a stiffener strip of plastic on the backside of the joint. You can get small sheets of styrene at hobby supply stores or some plastic supply shops have scrap bins you can buy small pieces from.



**Mechanical Bonds:** If the parts will not fit back together cleanly then you will likely have to resort to a mechanical bond (adhesive). Cyanoacrylate glue or an epoxy will probably do

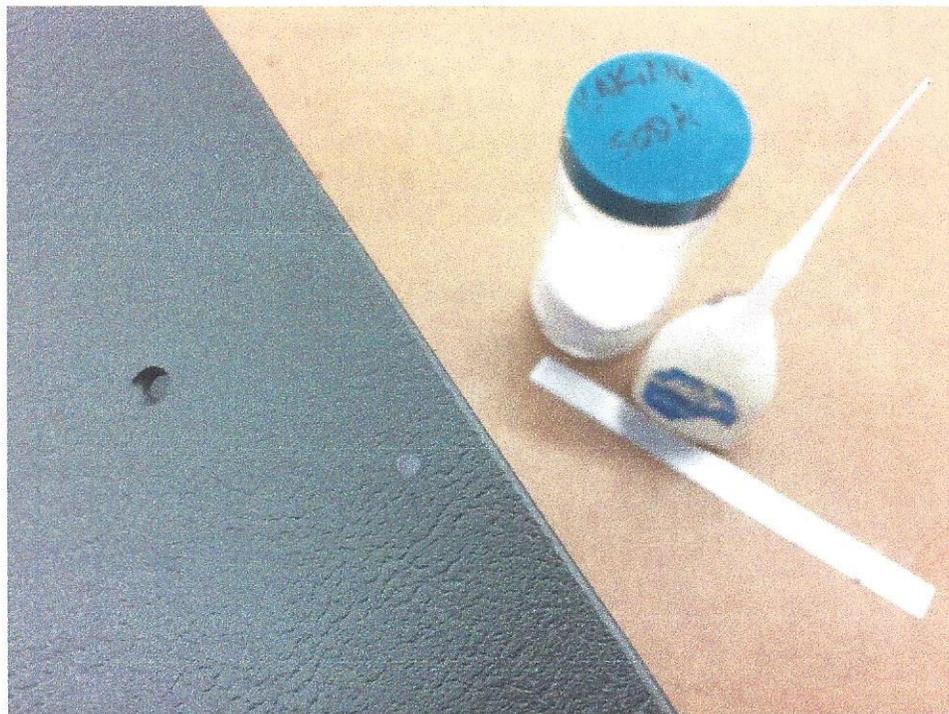
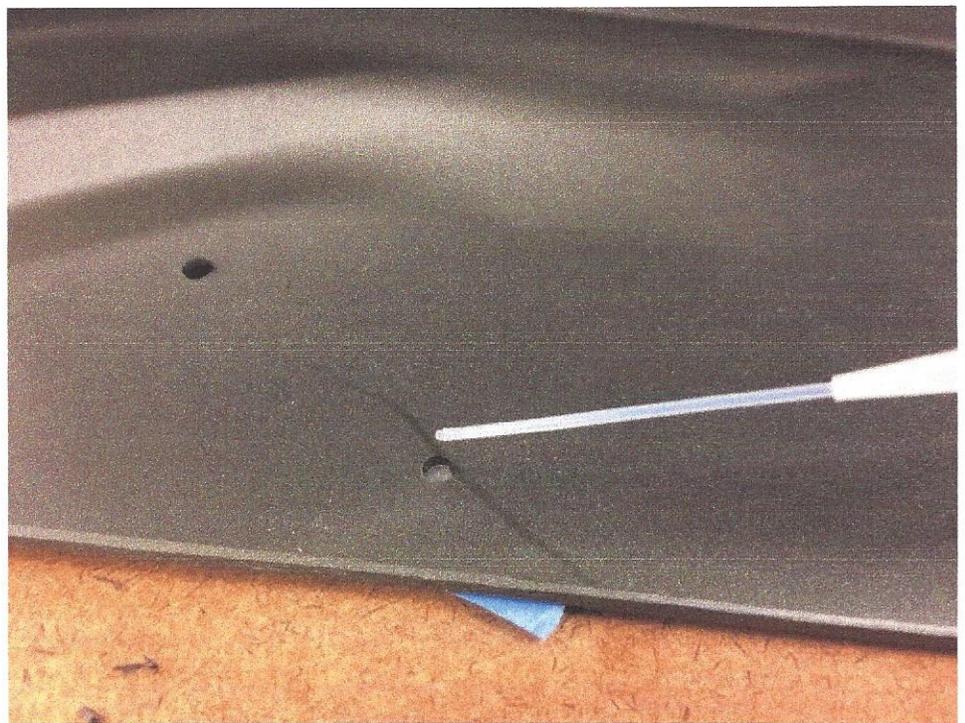


**What if there are small pieces missing or someone has “added” an extra mounting hole to your plastic part?** Well....if it is a vinyl covered part I don't have a good clean solution. If it is a bare plastic part there is hope. Assemble the parts with solvent or CA glue and allow to dry. Apply some good quality masking tape over the gaps or hole (on the finished side) and burnish it down around the gap or hole. From the back side of the part put in a thin layer of baking soda into gap or hole. Apply a little CA glue to the baking soda (this has to be the thin instant CA glue for this method to work. I prefer the Jet brand, but any will work). The white baking soda will turn grey as it becomes saturated with the CA glue. This process causes some vapors that can irritate eyes, nose and throat, so ventilation and safety glasses are in order. Add more thin layers until your missing area is filled in. If you burnished the tape down well you will not get much bleed around the edge on the finished side, so hopefully little sanding should be required. If you are handy with a Dremel tool you can even add some of the typical vinyl grain back into the filled area. This fill is very strong and can also be used to repair damage/split screw bosses in plastic parts. It can even be drilled and tapped if you build it up carefully.



First layer of baking soda in bottom of hole. Scrape off excess around hole before applying CA glue. (Small flexible ruler make a great spatula to dispense baking soda)

Adding a couple of drops of CA glue. Add additional layers to fill in hole completely.



Completed repair. If needed any pin holes or imperfections can be filled with light weight body filler. Sand lightly if required, prime,

# Engine Oil for Vintage Corvettes

## by Duke Williams

(This article was printed in the Restorer, Vol. 35, No. 1, Summer 2008. This updated version is used with permission of the author who is currently working on another updated version.)

There is probably more chatter about engine oil than any other automotive subject. Entire Web sites are dedicated to the subject, but a good 90-plus percent of what you read and hear is based on myth, misinformation, and marketing hype. For well over half a century the automotive and petroleum industries have promulgated engine oil standards through the American Petroleum Institute (API). The result: Engine oil is a generic product, but different generic engine oil products are offered depending on the type of service. The current API service category system dates back to 1969, and there are two basic categories. Current, past, and obsolete service categories that begin with "S" are intended primarily for spark ignition (gasoline) engines and "C" categories are intended primarily for compression ignition (diesel) engines. The second letter indicates the revision, and the service categories have evolved to the current SN (which replaced SM in late 2010) and CJ-4 ("4" refers to four-stroke cycle) based on the requirements of currently produced engines, and I emphasize currently. SM and SN are not the best engine oils for vintage gasoline engines for reasons that I will explain.

As a general rule both C and S-category performance requirements have significantly increased over the years, but recent changes have reduced the concentration of anti-wear additive due to evidence that its combustion byproducts reduce catalyst life; and EPA requirements for tighter emission controls and longer emission control system warranties are one reason for the reduction. A second reason is that modern engine design details have reduced the need for anti-wear additive.

Additives, which are critical to proper engine performance and longevity include detergents, dispersants, and corrosion, foaming, and wear inhibitors. The most effective anti-wear additive going back over 50 years is zinc dialkyldithiophosphate, commonly known as ZDDP. This additive is critical to preventing sliding surface wear, and, in particular, vintage engines have many sliding surfaces in the valve train such as flat-faced valve lifters and plain bearing rocker arms/shafts or stamped rocker arms/balls as used on vintage Chevrolet V-8 engines. Most modern valve trains, both pushrod and overhead cam types, have roller lifters and roller trunnion rocker arms, which means they don't need as much ZDDP as vintage engines!

From the 1950s to 2004 when the SL specification was adopted, many engine oils were dual rated, carrying both the then current gasoline and diesel engine service categories. The primary service category was listed first and was often a marketing decision since the major marketers have spent years building various brand names specifically targeted at either diesel or gasoline engine owners. The typical level of ZDDP in these oils based on the mass fraction of phosphorous (symbol "P" on the Periodic Chart of Elements) evolved to about 0.12%, which can also 1200 ppm (parts per million,

The contents are certified C-category oil packaged by an API licensed company under contact to the retailer with their house label. Retailers usually shelve C-category oils together, but they may be in a different section than S-category oils. I never fail to see a selection of C-category oils at any auto parts or big box store I visit. The commonly available 15W-40 viscosity range is suitable for cold starts down to about 10-15 degrees F (or around -10 C) and will likely meet the needs of 99 -plus percent of vintage car owners. If cold starts below this range will be common, use the 5W-40 “synthetic” version, which is blended with more higher viscosity index Group II and Group III hydroprocessed base stocks; 10W-30 is also available in some brands, but may not be commonly stocked at automotive retailers, particularly in warmer climates. Most national brand Web sites have product data sheets on all their engine oils that include available viscosity grades and chemical analysis. Google is your friend.

Once CJ-4 certification is achieved, certain secondary categories may be listed, however, the marketer may choose not to do so. You may find other C-categories and a S-category listed after the primary C-category because if the primary service category - the first listed service category - is “C”, the S-category phosphorous limitation does not apply, so CJ-4/SM is common; however, the use of more than one S-category is prohibited regardless of the primary category. “CI-4 Plus” indicates a formulation with enhanced soot handling capabilities for diesel engines. Since soot is not an issue in spark ignition engines you can be indifferent to CI-4 Plus. See the accompanying examples of acceptable (primary) CJ-4 service category symbols.

These subtle and somewhat confusing details can be gleaned from the API 1509 document that is referenced below. If secondary categories confuse you, ignore them and only pay attention to the first listed service category, which is the primary service category, and you want it to be CJ-4 or CI-4. It is relatively easy to become your own oil expert and make your own sound engine oil choices rather than trying to sort through all the myths and misinformation or listening to salesmen or “experts” who may have absolutely no technical/professional background in the automotive or petroleum industries. The first thing you should do is take the “Fundamentals of Lubrication” and “CJ-4” courses [www.lubricantsuniversity.com](http://www.lubricantsuniversity.com) (Editor note: link not valid now. Chevron has updated web site).

Do you know the difference between boundary lubrication and hydrodynamic lubrication? If not, you need to take these courses, which will take about an hour.

Also, download and print the API Engine Oil Guide:

[http://www.api.org/~media/Files/Certification/Engine-Oil-Diesel/Publications/MOTOR\\_OIL\\_GUIDE\\_120116\\_FINAL\\_WEB.pdf](http://www.api.org/~media/Files/Certification/Engine-Oil-Diesel/Publications/MOTOR_OIL_GUIDE_120116_FINAL_WEB.pdf)

For further information including an explanation of the five engine oil base stock Groups and why the term “synthetic” is meaningless as it relates to motor oil, download and read the 129 page pdf document – API 1509 Engine Oil Licensing and Certification System along with Appendices E and F that you will find at:

<http://www.api.org/products-and-services/engine-oil/eolcs-categories-and-documents/documents/api-1509-documents>

For a couple of hours effort you will know more about engine oil than 99 -plus percent of the self - proclaimed “experts”, and you will be able to make intelligent and economical engine oil choices for all your vehicles.

0.10% equals 1000 ppm). Over the years this level has proved to be ideal for sliding surface protection. Significantly less can allow more rapid sliding surface wear, but more than 0.14% over the long run can have negative effects such as certain corrosion mechanisms. More is not necessarily better, and there is absolutely no need to use any supplemental ZDDP-rich additives with CJ-4 other than GM EOS being optional for initial engine break-in.

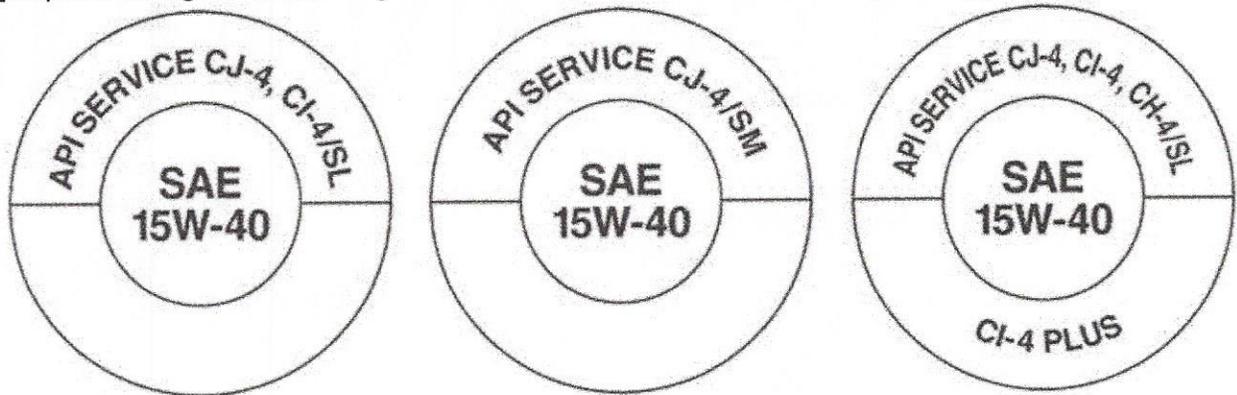
Field oil analyses usually reveal the Zn (zinc) concentration, and sometimes marketers specify it. As a general rule, the Zn concentration will be 100-200 ppm higher than the P concentration. To promote long catalyst life, SM and SN oils with winter viscosity ratings of 10W or less are limited to 0.08% P. (The SL limit was 0.10%.) This is sufficient for modern “roller everything” gasoline engines, but may not be sufficient to prevent accelerated wear on vintage engine sliding valve train components. SM and SN oils with winter viscosity ratings above 10W have no P limitation, but this does not mean that 20W -50 SM or SN oils have more because only as little as 0.06% P is required to pass the SM or SN specifications and test suites. As a result, most current S-category oils cannot pass some of the C-category tests.

The current CJ-4 specification also limits P due to the addition of catalysts to 2007 and later over-the-road heavy-duty diesel engines, but the limitation is 0.12% - 50 percent greater than SM and SN - and 0.12% is about the same as earlier S and C-category oils before any P limits were adopted. Typical CJ-4s analyze at 0.11-0.12% P, and this level of ZDDP is necessary to pass the tougher CJ-4 anti-wear test suite. As a general rule, past and present, C-category test suites are a higher hurdle than S-category test suites. Thus, CJ-4 is the best commonly available oil for vintage engines because you are essentially guaranteed a near ideal amount of ZDDP for maximum protection of vintage engine sliding surface components. If you happen across a (first listed service category) CI-4, it is perfectly acceptable. CI-4 has no P limitation, but the typical concentration is at or slightly above the 0.12% CJ-4 limit – not enough to be of material difference, so there is absolutely no need to seek out CI-4 in lieu of CJ-4.

There are a number of “boutique” oil companies that market engine oil to the racing and vintage car communities claiming their oils are “better” than off-the-shelf oils, and these products are often several times the price of off-the-shelf oils. Some of these oils are not API certified (which is a multi-million dollar process for all the required laboratory and field tests), so you have to be genuinely knowledgeable about engine oil formulation and reliably know the analysis of these oils to rationally determine whether they are even the equals of API certified oils. Otherwise, a slick sales pitch can scare you into believing that your precious vintage engine will disintegrate into a pile of dust if you don’t use their oil.

The next question is invariably: What brand? I refuse to name brands because it doesn’t make any difference! There is no “best brand!” As long as the label (usually the label on the back side of the package) has the API Service Symbol (sometimes called the “donut”) with “CJ-4” (or CI-4) as the first listed service category, the product, within reasonable tolerance, is essentially the same as any other API CJ-4 or CI-4. There are scores of C-category oils on the market, but you will typically run across three national brands marketed by major oil companies like Chevron-Texaco, Exxon-Mobil, and Royal Dutch Shell and often “house brands”. The general motoring public is totally ignorant of the API service category system and even most “car guys” of my acquaintance seem to know little or nothing about the subject, so start your education by reading some labels. The tip-off on the front label may be words like “diesel” “Delo”, “Delvac”, “Rotella”, “universal motor oil”, “fleet oil”, and “15W-40”; and don’t be afraid to buy a house brand C-category oil from a reputable retailer like Walmart or the major auto parts chains.

[Caption for figure containing three API CJ-4 certification symbols]



Typical primary category CJ-4 API service category symbols with various acceptable secondary categories.

*(Symbols courtesy of The American Petroleum Institute)*

About the Author:

*Duke Williams is a retired automotive and aerospace engineer and holds a Master's Degree in Mechanical Engineering from the University of Wisconsin Engine Research Center. He is the original owner of a 340 horsepower 1963 Corvette Coupe and a 1976 Cosworth Vega and has been involved with restoration and racing since he was a teenager. He resides in Redondo Beach, California and is a member of the National Corvette Restorers' Society, Southern California Chapter and the Cosworth Vega Owners' Association*



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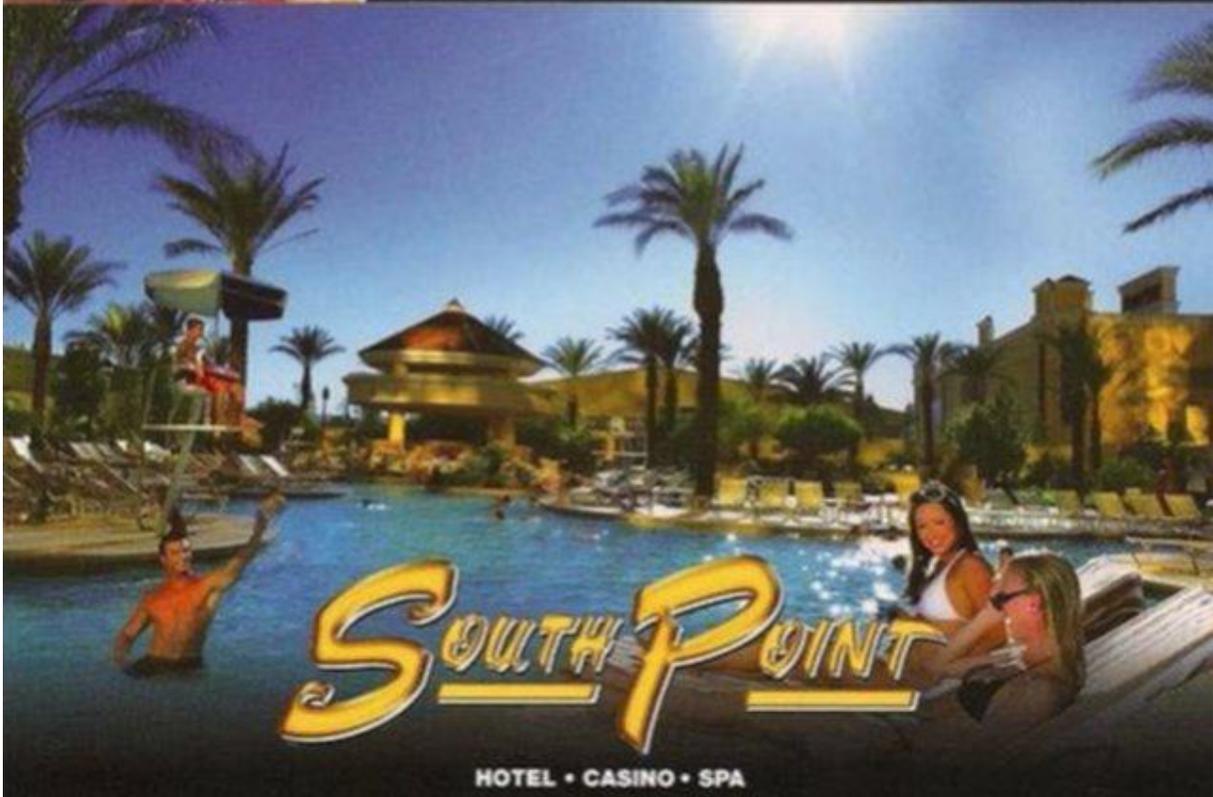
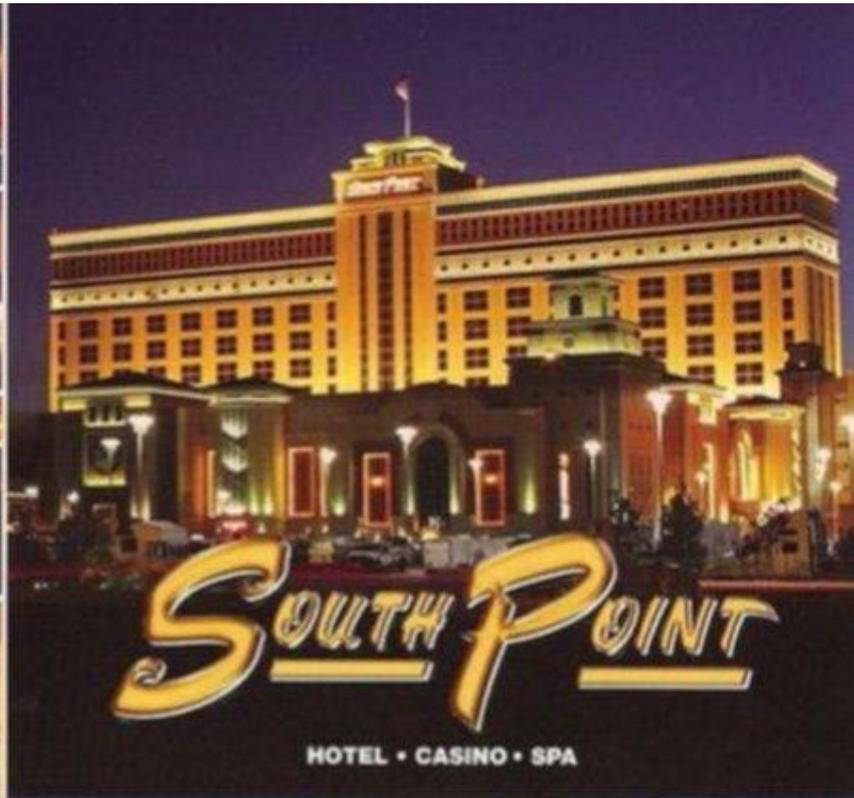


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Group name: National Corvette Restorers Society

Dates: July 13 – 20, 2018

Group Code: NAT0713 (1st three are letters, last four are numbers)

Cut-off Date: 6/24/18

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