



# INTAKE MANIFESTO

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Jan-Apr 2026 Issue



## CHAIRMAN'S MESSAGE GARRY MION

What a great and fun start to the year for the Chapter, which was anything but typical (including the weather).

We started things off with a driver/meet-up at the Martin Auto Museum in Glendale, AZ. The Martin Museum has been around for a long time, but the last time I was there they were located near Bell and the I17. Now it's a huge facility with many more cars and memorabilia. A few of us started our trip to the museum from Carefree after attending the Carefree Corvettes and Coffee, and met up with everyone after the 45 minute trip. The group explored the museum at their own pace, and around 12:45pm we assembled to walk across the parking lot and head to Charley's Place for lunch. Many thanks to Chris and Angela Gazzano for organizing this event.

Our February technical session had to be postponed (now happening on May 9th, see info later in this newsletter), so our next event was Concours in the Hills, an annual charity event in Fountain Hills. There were twelve cars that participated and along with displaying our cars we had a table setup to interact with attendees that showed interest in Corvettes and possibly joining NCRS. The weather was great and everyone had a good time. Many thanks to Scott Sandler for organizing this event.

Enter March and our Spring Chapter Judging Meet at Streetside Classics in Mesa. There were five flight cars and two display cars, so both Friday and Saturday were busy days. A couple of cars had to back out, but we're hopeful they will be ready for our Fall Judging Meet in October. Friday night a group of attendees headed over to Mellow Mushroom for pizza and appetizers. All judged cars walked away with a Top Flight ribbon: Congratulations. Many thanks to the members who signed up to be judges, tabulators, and observers. Of course, we owe a big thanks to the folks at Streetside Classics for allowing us to use their facility.

In April we were treated to another social event, this time it was the Arizona Commemorative Airforce Museum in Mesa. The visit including parking our cars out by the B-25, where owners were able to take individual pictures with their cars. Inside we were treated to a tour of the facility and all of its preserved history (which has grown so much since the last time the Chapter was there in early 2000's). After our tour the group headed down to Cracker's Café for lunch. Many thanks to Ralph and Pam Jerome for organizing this wonderful event.

The April 16-18 Show-Me Regional in Springfield, MO is in the books. A great turnout with over 80 cars registered. Two Arizona Chapter members, James Sheehan ('53) and Doug Brown ('62) were there for Performance Verification, and both passed. Congratulations.

I am pleased to announce that member Ron Brennan has agreed to consider taking over the role of Chapter Newsletter Editor. Over the coming months I will be helping Ron get comfortable with preparing the next newsletter, and if all goes well and he feels comfortable then he can take over the role going forward. I truly appreciate Ron's willingness to give it a try, and hopefully it all goes well. Thank you Ron.

At a National level, Mike Ingham was again elected as NCRS President for another year. Steve Cataldo, Region I Director, was elected Vice President. If you haven't been to the website, it has been substantially revamped and looks great. Many more updates are planned, including a better and more intuitive way to renew your membership. John Tidwell retired as the Financial Manager, and we wish him well as he and Sofie get a much needed break. John Yglesias will take over the role. 2008-2010 Corvettes are expected to be open for Flight Judging this summer.

Be sure to check out the updated calendar. There are a few opportunities to suggest/host an event, including our June and November judging schools. What would you like to see?

INSIDE THIS ISSUE	
<i>2026 Officers / Sponsors</i>	<u>2</u>
<i>Calendar</i>	<u>3</u>
<i>Board Reports</i>	4
<i>Event Updates</i>	5-9
<i>Member Articles</i>	10

**2026 AZ Chapter Board**

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*Jeff Smith*

**Judging Chairman**  
*Gary Craig*

**Treasurer**  
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*Pam Jerome*

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*Pat Garland*

**Activities Chairman**  
*Chris Gazzano*

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 \$36 per year. For membership information, please visit our website at [www.arizonancrs.com](http://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 Award<sup>SM</sup>, 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. Please Support Them!



# 2026-27 SCHEDULE OF EVENTS

Date	Activity & Registration/Contact Information
May 9	Chapter Tech Session — Engine Analysis and Tune-Up Gilbert, AZ
May 15-16	SCC 5-pt Spring Chapter Meet Ramona, CA <a href="#">Online Registration</a>
June 4-6	Altoona Regional Altoona, PA <a href="#">Online Registration</a>
June 20	Chapter Judging School—Topic TBD
July 26-30	NCRS National Convention Charleston, SC <a href="#">Online Registration</a> Opens February 1st
September 17-19	Intermountain Regional Airway Heights, WA <a href="#">Online Registration</a> opens in March
September 26-27	Placeholder Possible 1 or 2-day Driver/Social Event
October 16-17	Chapter 3-point Fall Judging Meet
October 22-24	Texas Regional Frisco, Texas <a href="#">Online Registration</a> opens in April
November TBD	Placeholder—Chapter Judging School
December 6	2026 Annual Meeting and Holiday Brunch Grayhawk Golf Club
January 13-16, 2027	Florida Winter Regional Melbourne, FL
January 23-31	Barrett-Jackson Auction Scottsdale
February 27	Concours In The Hills—Fountain Hills
March TBD	Chapter 3-point Spring Judging Meet
April 8-10	Carolinas Regional Clemson, SC
May 13-15	Adirondack Regional Albany, NY
June 3-5	North Central Regional Rochester, MN
August 1-5	National Convention French Lick, IN
October 21-23	Texas Regional Frisco, TX
November TBD	Chapter 3-point Fall Judging Meet
December TBD	Annual Meeting and Holiday Party

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

## 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 [CHRIS GAZZANO](#) TO DISCUSS IT.

# CHAPTER TOP FLIGHT REPORT JEFF SMITH

As an NCRS Chapter, our AZ Chapter must file a report summarizing our club activities each quarter. To maintain our status as a chapter, we must complete certain required activities each year. Additionally, there are several optional activities we can report on. Below is a chart summarizing our activities for the first quarter of 2026. As you can see, we are well on our way to meeting all the required activities for 2026 having completed 4 out of the 7 required activities and 5 of the 9 optional activities already.

Arizona Chapter	2026				
REQUIRED ACTIVITIES	Q1	Q2	Q3	Q4	Summary 2026
Chapter Judging Meet	1				1
Chapter Technical Seminar					0
Chapter Judging School	1				1
Chapter Membership Meeting	1				1
Chapter Charitable Event					0
Chapter Road Tour	1				1
Chapter Social Event					0
VARIABLE ACTIVITIES	Q1	Q2	Q3	Q4	Summary 2026
Cars Judged at Chapter or Regional Judging Meets	5	0	0	0	5
	3.6%	0.0%	0.0%	0.0%	3.6%
Members That Judged or Tabulated at a Judging Meet	28	0	0	0	28
	20%	0%	0%	0%	20.3%
Corvettes driven to events	26	0	0	0	26
	18.8%	0.0%	0.0%	0.0%	18.8%
Members Attending Chapter Road Tours	36	0	0	0	37
	26.1%	0.0%	0.0%	0.0%	26.8%
Members Attending at Least One Event	63	0	0	0	63
	46%	0%	0%	0%	45.7%
Technical Articles Published	0	0	0	0	0
Set up FACEBOOK Page and Post at Least One Video of a Chapter Event	0	0	0	0	0
Official Participation in Non-NCRS Car Events	1	0	0	0	1
Charitable Donations	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

## MAY 9TH TECHNICAL SESSION GARRY MION

On Saturday, May 9th, Gary Craig and I will host a Technical Session at my home in Gilbert, Arizona.

We'll be talking about engine health and tune-up, two important topics that are essential to maintaining and getting the most enjoyment out of your vintage Corvette.

Engine health is often ignored, largely because it does require specific tools and may be beyond your skill set or physical abilities. We'll look into cylinder compression and leak down. Discuss spark plug and wire condition along with distributor and points.

Tune-up topics will include distributor advance and timing, along with carburetor operation and setup.

Check your email for full details. RSVP is required.

Hope to see you on the 9th.

# 12TH ANNUAL CONCOURS IN THE HILLS



On February 14th, the Chapter once again organized an NCRS presence at the 12th annual Concours in the Hills car show at Fountain Park in Fountain Hills. It was a great turnout with about twelve members from the Chapter in attendance, along with their beautiful cars.

We met as a group just outside entrance number five at 6:30am, giving us a straight shot into the park. We again parked along the south end of the lake with our backs to the fountain as shown in the picture above. The weather couldn't have been more favorable, with a cool start and warmer temps as the day progressed. Of course, we couldn't start the day without an abundance of coffee and donuts,

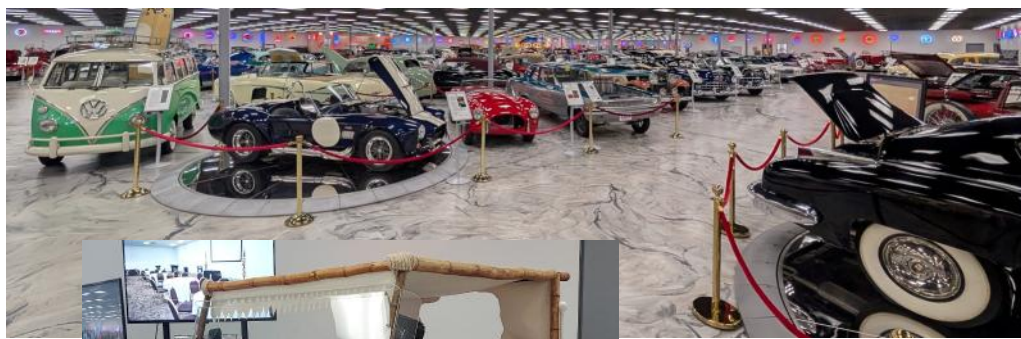


Several of us were able to chat with corvette enthusiasts throughout the day, some of which expressed interest in joining NCRS and the Chapter. Our thanks to Scott Sandler for once again leading the effort to get us organized and parked together.

## MARTIN AUTO MUSEUM CHRIS GAZZANO



Thirty three chapter members enjoyed a self guided tour of the Martin Auto Museum. Seventeen beautiful Corvettes were staged in the parking lot. The museum is said to have the largest collection of classic, hot rod, customs and imports in the valley. Afterward, all enjoyed lunch at Charley's Place, a short walk from the museum.



## SPRING CHAPTER MEET RESULTS GARY CRAIG

On March 20th and 21st, the Arizona NCRS Chapter held another very successful Spring Chapter Judging Meet at an excellent location: Streetside Classics in Mesa. Thank you Eddie and Kolby for letting us use your great facility for our Judging School and for our Flight Judging. Five cars were judged at the Chapter level.

The Flight cars were excellent versions of the NCRS standard, especially Jim Rand's Ermine White 1963 split window fuel injected tanker car. We had Jim Sheehan who brought out his 1962 Fawn Beige Corvette. Ray Geiger brought out his Rally Red 1965 which was a very beautiful Corvette. Next, Bill Cumnard's Marlboro Maroon 1967 tri-power 427 came out again and scored a percentage point higher than last fall, good job Bill and Julia for the big improvement to your Corvette. Our final Corvette was a Sebring Silver Metallic 1996 Corvette owned by Jerry Bayer. Silver is a great color on a Corvette.



On Friday, we started the meet by performing Operations Judging on the five cars and once completed the cars were parked in the Streetside Classics facility for overnight storage so the cars would be ready and cool for the remaining four Flight Judging sections. Following operations we held a Judging School on Introduction to C6 Judging. Pete discussed the various ways that he has researched the various cars within the 2005-2010 years to build the new judging manuals for these years. For us that are using current manuals and just doing revisions, this task of creating new manuals is remarkable especially since our 2008 Z06 will be getting judged after this year's National. I look forward to seeing the 2008-2010 manuals. We had 30 participants for the Judging School at Streetside.



We had a full three teams of judges for the Flight Judging on Saturday. Two cars driven to the event. Dana Richard in his 2003 for Dave Hill display & Elizabeth Feffer in her 2017 Corvette for Sportsman. A total of 41 members participated in the Chapter Meet on Saturday.

We could not have had such a successful Spring Chapter Meet without our volunteers as well as the fabulous Tabulators; Suellyn Bennett, Cecelia Junokas, Jeanne Cloutier and a big Thank You to Cathy Bergmann for being the Head Tabulator. Oh, and of course, we couldn't have a successful Chapter Meet without all of our judging teams and three team leaders, Garry Mion for the C1 team, David Peterson for the C2 team and Pete Bergmann for the C4 team. Thank you all for your time and efforts. Have a wonderful Spring/Summer and hope to see you at our upcoming events.



Suellyn, Jeanne, Cathy, Cecelia



James Sheehan  
(Garry Mion Accepting)  
1962 Top Flight



Jim Rand  
1963 Top Flight



Ray Geiger  
1967 Top Flight



Bill Cumnard  
1967 Top Flight



Jerry Bayer  
1969 Top Flight



Elizabeth Feffer  
Sportsman

## COMMEMORTIVE AIR FORCE MUSEUM TOUR



On April 12, several members enjoyed a tour of the Arizona Commerative Air Force Museum in Mesa, AZ, followed by lunch at Crackers & Co Caf . As you can see from the picture above, all of the member cars were parked in a row upon arrival, and off to right (west) was the B-25 "Maid in the Shade" bomber. The group assembled inside where



they were treated to a wonderful tour of the facility. Picture at left and below are just examples of what the group saw and learned about. After the tour concluded, it was picture time with the B-25 and each member's Corvette. When that finished, we assembled as a group and took the picture at the bottom of the page. The group then headed down the road for lunch at Crackers & Co. Caf .

Our thanks to Ralph and Pam Jerome for putting this event together for the members to enjoy. You can find out more about the Commemorative Air Force by going [here](#).



COMMEMORATIVE AIR FORCE



# SPRINGFIELD SHOW-ME REGIONAL GARRY MION



Congratulations to the combined efforts of the Kansas City and St. Louis Chapters for once again getting together and hosting the Show-Me Regional in Springfield, MO. The last one was just seven short month's ago. 81 registered cars and 230 registered attendees. Congrats to a job well done. Karen and I once again drove our 2019 Grand Sport to the event, enjoying a few stops along Route '66 as it celebrates 100 years. We also managed a stop Buc-ee's in Amarillo (actually twice, once going and once coming back). Sure will be exciting to have one in Goodyear soon.

This was a rather successful Regional for two members of the Arizona Chapter: James Sheehan and Doug Brown. Both passed their Performance Verification test and are now on their way to achieving a Duntov Mark of Excellence. Congrats to both of you for a job well done. I figured the Regional would be the perfect time to check out Open Class Judging first hand. The hardest part was cleaning a car that just traveled 1300 miles and encountered rain. The process was smooth and the car achieved an Emerald Award. Attending the Regional were our National Team Leaders Bill Calorico, Gary Craig, and Pete Bergmann, along with members Gary Bennett, Pat and Joyce Garland, John and Beverly Legate, and Dana Richard. See pictures of the event by going [here](#).



# OIL PUMP PRESSURE RELIEF SPRINGS

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For anyone considering attempting a Performance Verification for their car, they should be aware of one seemingly minor thing that has tripped up some people, namely the oil pressure. When engines in our 50+ year old cars are rebuilt, a new oil pump is typically installed. Different oil pumps can and do produce different oil pressures under the same operating conditions. As the name implies, some high pressure pumps can and sometimes do produce oil pressures that can peg the needle, especially on a 60 psi oil gage. That can lead to an automatic failure during a PV. One component of the oil pump that has a great deal to do with the oil pressure is the pressure relief spring installed in the pump. A key specification of that spring is the spring stiffness. If a higher stiffness spring is installed in the oil pump, then the operating oil pressure can be higher than normal, and in some cases high enough to fail a PV. So, let's consider the spring stiffness. The stiffness,  $k$ , of a coil spring, like the oil pump spring, is given by the formula:

$$k = G \cdot d^4 / (8 \cdot N \cdot (D - d)^3),$$

where  $G$  is the shear modulus of the spring material,  $d$  is the wire diameter,  $D$  is the outer coil diameter, and  $N$  is the number of "active" coils. The number of active coils is not always easy to count, but for springs with "closed" ends, like oil pump springs have, the number of active coils is typically 2 less than the total number of coils. (Due to the bunching of coils near the spring ends, the total number of coils is also not always easy to determine. As a rule of thumb, if two coils are touching or very close to touching, they don't count as two coils.)

For a coil diameter,  $D$ , much larger than the wire diameter,  $d$ , an approximate spring stiffness can be calculated using a simplified formula:

$$k_{\text{approx}} = G \cdot d^4 / (8 \cdot N \cdot D^3).$$

The formula for the approximate spring stiffness is interesting because it makes it easy to see the effect of a change in the wire diameter ( $d$ ). For all other values kept constant, a relatively small increase in wire diameter can result in a relatively large increase in spring stiffness. This is due to the exponent of 4 applied to the wire diameter in the numerator. As we'll see later on, the wire diameter plays a substantial role in several of the different oil pump springs we will subsequently compare. (As an aside, given the coil diameter and wire diameter values for oil pump springs, the approximate formula for stiffness is not very accurate. So best to use the exact formula.

About a year ago I purchased a Melling 10553 oil pump (unfortunately discontinued by Melling in late 2021 or early 2022, and replaced with the Melling 19553ST, which is a high volume pump) for the rebuild of my L79 motor. The Melling 10553 pump has been described as a very high quality pump by several knowledgeable people on the Technical Discussion Board. The Melling 10553 pump is a standard volume pump, but it comes with a high pressure spring (Melling #55070) installed. Also supplied with the Melling oil pump is their so-called "standard" pressure spring (Melling 55058). This standard pressure spring is often referred to as the "yellow" spring, because Melling adds a bit of yellow paint to the spring for ease of identification. Melling also sells a "green" spring (Melling 55049). The last two digits in the Melling part number, 70, 58, 49, is supposed to indicate an operating oil pressure. Although it's not clear to me under what conditions that pressure is measured (engine temperature, oil viscosity, RPM, engine clearances, etc.).

Regardless, we shall see that the three Melling springs differ from each other in obvious and important ways, and more importantly the Melling springs differ from the original GM spring. All of the Melling springs can be used in the 10053 Melling oil pump. As can the original GM oil pressure spring, GM #3814903 (unfortunately, that spring was GM-discontinued around 2019). As Duke Williams pointed out on the Technical Discussion Board (TDB), "3814903 is the correct original part number for '62 and up OE small blocks with the "standard" 40-45 psi hot oil pressure at 2000 spec, and these models should have 60 psi gages." Special High Performance (SHP) small block engines with mechanical lifters of that era used a different oil pump spring. As did all big blocks. My '66 L79 came with the 3814903 spring, hence my focus on that GM spring.

At right is a photo of the four springs that I will compare. Below is a table showing the specifications for the four springs.



Spring Brand	Active coils	Free Length (in)	Wire Dia (in)	Coil Dia @ Center (in)
Melling 55078	16	2.xx	0.0xx	0.xxx
Melling 55070 High Pressure	18	2.32	0.041	0.319
Melling 55058 ("yellow") Standard Pressure	18	2.20	0.041	0.319
Melling 55049 ("green")	20	2.37	0.038	0.319
GM #3814903	21	2.19	0.038	0.319
GM #3848911 High-pressure small block spring	21	2.28	0.041	0.319

## OIL PUMP PRESSURE SPRINGS CON'T

Using the first formula for spring stiffness, we can calculate the stiffness of these four springs. They are:

Spring Brand	Stiffness (lbs/in)	Percent of GM Stiffness
Melling 55070	10.50	163%
Melling 55058	10.50	163%
Melling 55049	6.75	105%
GM 3814903	6.43	100% of GM 3814903
GM 3848911 0.319	9.00	100% of GM 3848991)
GM 3848911 Bill	10.028	

None of the Melling springs has the exact same stiffness as the GM spring. But another difference between the four springs is the free length. The free length does not affect the spring stiffness. But the free length ( $L_{free}$ ) does affect the force required to compress a spring to a given new length ( $L_{new}$ ), according to the formula  $F = k*(L_{free} - L_{new})$ . I don't know what the typically operating length is for the oil pump relief spring. But let's assume that, when installed, and the motor not running, each spring is compressed to the same length. Here are two examples of the forces required to compress each of the four springs to two different lengths.

Spring Brand	Force required to compress to 1.75" (lbs)	Percent of GM	Force required to compress to 2.00" (lbs)	Percent of GM
Melling 55070	5.99	212%	3.36	275%
Melling 55058	4.73	167%	2.10	172%
Melling 55049	4.19	148%	2.50	205%
GM 3814903	2.83	100%	1.22	100%
GM 3848911	4.77	100%	2.52	100%)

Each of the Melling springs requires a substantially higher force to compress to the same given length. I don't know whether spring stiffness is more important for determining oil pressure, or if spring force is more important, or if they are equally important. Nor do I know what length these springs are compressed to during service. Hence it's not possible to know which columns in the tables immediately above are the most relevant. Nevertheless, based on the stiffness and force tables, one can expect that all of the Melling springs will produce higher oil pressures than with the GM 3814903 spring. The Melling green spring has the closest stiffness value to the GM value, but not always the closest force value. You might have read on the TDB the claim that the Melling green spring is the same as GM 3814903, however, it is not identical to GM 3814903 because of a different free length and one fewer active coil. Because of these differences the Melling green spring should result in a higher oil pressure than with the GM spring. Whether the increase is enough to fail a PV, I can't say. What I can say is if you search through the TDB, you will find stories from multiple people using the Melling high pressure spring and the Melling yellow spring who report having undesirably high oil pressures. The above charts explain why that is the case. If you're having your engine rebuilt, and if your engine originally came with the GM 3814903 oil pump spring, my recommendation is to search for an NOS example of that GM spring if you want to be confident that your oil pressure will be close to what it was when the car was new. Of course, even when using the correct GM spring, your oil pressure is also affected by engine bearing clearances. If your motor has looser or tighter clearances than what GM used, then all bets are off.

## BALANCING MULTIPLE CARBS GARRY MION



Anytime there are multiple carburetors on an intake manifold, one critical function is to make sure they are balanced at idle. This is really difficult to do without the aide of a carburetor airflow meter, most of which are designed to fit small air horns like the Carter YH Carburetor used on the 53-55 six cylinders (shown at right). The general objective is to have each carburetor setup such that the throttle plates are allowing the same airflow to go through each carburetor at idle.

Now the trick was how do I utilize this meter on my 2x4 WCFB setup on the '60. Well, I contacted a friend who recently has been playing around with a 3D printer and asked if he could build a reducer for me. The problem was finding a 3D model he could modify, but that proved difficult, so he downloaded a free 3D modeling app and was able to successfully build a model that would reduce the opening of the WCFB (4.25") down to the opening required for the air meter (~2.4"). The picture at left shows the result. Turns out my carbs were a bit unbalanced, and after using this reducer both are now in sync and the idle is a bit smoother. Next will be road test, but that will have to wait for the Powerglide transmission to be rebuilt.



**ARIZONA CHAPTER**

