

# *THE TALEPIPE*

PUBLICATION OF THE TEXAS CHAPTER OF THE NATIONAL CORVETTE RESTORER'S SOCIETY  
3rd QUARTER

DECEMBER 2009 ISSUE

*Thirtieth Anniversary*



**LONE STAR REGIONAL KILLEEN, TX**

**OCTOBER 2009**

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## PRESIDENT'S MESSAGE

By Charlie Cadenhead — President, Texas Chapter, NCRS

Another very successful Texas Chapter Lone Star Regional has been staged by a extremely dedicated team of our members. I thank you all. The list of names of all workers is lengthy; however, I want to mention some of the key players and their teams... Ken and Vicky Robb for being the go to guy as Event Chair and for Vicky's Tabulation team work, Danny Reed for getting the word out to the area media, Tim and Carla Ehlers and their team for handling registration and the ladies' events, Sherrye Coleman for keeping our finances in order, John Lejsal and his team for taking care of the trailer parking, Bill King and the members who helped with Operations judging, David and Teresa King for being Chief Judge and for looking after the Chief Judge and keeping him on track, Tom Douglas for handling merchandise sales and also all those who helped with putting down and taking up the carpet covering. What a task that was! A special thanks to all Chapter members who came out and helped judge at this event. Many members who helped are not identified here but you know who you are and your help is greatly appreciated. We are now looking ahead to the 2011 Lone Star Regional!

The Silent Auction held during the Regional raised \$1,095 that was donated in total to Happy Hill Farm Academy and Home. Thank you to those of you who supported the auction. Regarding our charitable donations, we have submitted our Year 2009 Charitable Donation Report to National and will receive NCRS Foundation gift matching checks in early 2010 for presentation to those organizations to

I hope by now you are aware that each NCRS member who has earned Judging Points and Sportsman Award points and is registered with the Tech Discussion Board can find that information posted on their Member Profile.

We are gearing up for a busy Year 2010. Chapter Meets are currently scheduled for Houston and Ft. Worth and a Chapter Road Tour to the Albuquerque Regional is in the works. Articles on the Houston Chapter Meet and the Road Tour appear elsewhere in this issue of *The Talepipe*. Judging Schools and Tech Sessions are planned however firm dates are not yet established. We now have numerous NCRS and other Corvette events posted on the calendar on our Chapter web site.

Please remember that if you are planning on attending the National in Charlotte NC in July, the days for the event are not the usual Sunday through Thursday. Due to a scheduling conflict a NASCAR event at the track on Monday, our 2010 event will run Tuesday through Sunday.

**Please Confirm Your E-mail by Sending an E-Mail to:**  
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Membership in the NCRS is open to persons interested in the restoration, preservation, history and enjoyment of Corvettes produced by the Chevrolet Motor Division of General Motors Corporation. NCRS is not affiliated with Chevrolet or General Motors. NCRS registered marks used in "*The Talepipe*" are NCRS Founders Award®, NCRS Master Judge Award®, NCRS Performance Verification Award®, NCRS Flight Award®, and NCRS Sportsman Award® are registered with the United States Department of Commerce and Trademark Office. The NCRS American Heritage AwardSM application is pending.

Membership in the Texas Chapter of the NCRS is open to all members of the NCRS National Organization. Dues of the Texas Chapter are \$20 per year, payable to the Membership Chairman of the Texas Chapter NCRS

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## Texas Chapter Officers

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## **Vice President's Clipboard**

**By Tim Ehlers**

It was good seeing everyone in Killeen. My thanks to those that helped keep Registration and General Admission running smooth again this year:

- Norma & Gary Chesnut
- Denise Williamson
- Sherrye & Larry Coleman
- Jo Houlihan
- Carla Ehlers
- Sherri Demmel
- Debbi Wrobliske
- Vickie White
- Ann Naber
- Teresa Rabalais
- Dave Ewan
- John Lejsal

It's always fun to recap some of the statistics from this year's show:

- 173 - Number of families registered (representing 33 states).
- 286 - Number of people registered (name badges printed).
- 136 - General admission attendance.
- 160 - Awards banquet tickets sold.
- 50 - Trailer parking.
- 73 - Cars entered:
  - 55 Flight judging entries:
    - 8 - C1.
    - 24 - C2.
    - 16 - C3.
    - 7 - C4.
  - 9 - PV entries.
  - 5 - Sportsman entries.
  - 4 - Display cars.

On Friday, 15 women visited Salado, TX for a day of shopping, history, and lunch. Thanks to Carla Ehlers for her special arrangements.

I feel pretty good about the Texas Chapter earning a Top Flight Award again in 2009 as part of the NCRS' Chapter Award Program. The way the

program is designed, it is important for at least 20% of our Membership to participate in at least one event. I only get to count participation once for a Member that attends many events throughout the year. It is also important for our members to drive their Corvettes to the events.

Next year, without a Regional, this will be more difficult to achieve. You'll see more information on judging events, seminars, and other events hosted locally in our Texas Areas. We hope to have many small events to attend in 2010.

I hope all of you enjoy the Holiday Season, travel safely!

## **SECRETARY REPORT**

**By Bill Usher**

With 39 participants attending, Charlie Cadenhead, President of the Chapter called the meeting to order at 7PM, October 14, 2009. This general membership meeting was held in a room within the event hall for the 2009 Lone Star Regional meet in Killeen, Texas. Charlie first thanked a variety of chapter members who had assisted in the conducting of the event, in particular Ken Robb, chapter event chairman. Next Charlie asked Ken to provide some comments. Ken talked about the challenge the main ballroom floor had been with respect to its plastic sheet covering. He also discussed the Albuquerque Regional in 2010 and the potential for a Texas road tour. He updated the status of the Waco facility renovation stating that more definitive information will be known in early 2011, the year that the regional returns to Texas. With respect to logistics of the ongoing regional event in Killeen, he reiterated the need to have all "indoor" cars out of the hall by 6PM. He also put out a request for a few people to work the general gate entry on Friday and Saturday. Charlie took back the floor and stated that there might be as many as 3 chapter meets in 2010 in Ft. Worth (at the track), Austin and Houston. The events would coincide with the Lone Star Corvette Club event in Fort Worth and the Chevy / Corvette Expo in Houston. The plan would be to have these as judging activity events. Two would be held for certain and more will be known later in the year.

Next, Tim Ehlers, event registration chief and External Affairs Officer for the Chapter, covered several topics related member participation which was critical to the requirements for winning a Chapter Top Flight Award. He said that 6 more technical articles were needed for 2009 and requested input.

## SECRETARY REPORT continued

By Bill Usher

He also clarified how a chapter meeting was defined insofar as number of participants required (2+) Next, Membership Chairman Bill King, made several comments. Highlighted was the deletion of non- dues paying members from chapter rolls. Also that anyone wishing to renew their membership could do so while at the meet.

Next, Sherri Coleman, Treasurer gave a brief report on finances stating that the bank account balance was \$28,998.23 on a "before event" basis. \$10,000 + is in a money market account.

Next, Gary Chesnut updated the group with respect to activities and focuses at the national level. He talked about the possibility of a dues increase, the NCRS archives being dedicated at the National Corvette Museum, the importance of early registration for the 2010 National at Charlotte, judging points summaries being added to the NCRS website, and the probable expansion of website offerings.

Next, Charlie discussed the fact that all chapter officers had agreed to serve on into 2010. He asked for a confirming vote for this slate and the vote carried unanimously. He reported that he and Bill Usher were addressing the update of the By-Laws and that it was a work in progress. Bruce deLeon volunteered to assist and his help was accepted.

Next, Vice President Bob Cook talked about the interest many of the nearby Ft. Hood soldiers had in Corvettes and urged members to be cordial and welcoming if and when military staff came to the event.

In closing, several members of the audience showed their appreciation for chapter supplied permanent name tags for member and spouse/partner.

There being no additional business, Bill Usher moved that the meeting be adjourned. The motion was seconded and the meeting ended at 7:37PM.

## MEMBER ADS

For sale: 28 foot enclosed Racing Trailer  
Cyclone Storm – 2002  
Diamond Plate Floor  
2 batteries, Power jack, Heavy Duty Winch  
Built in cabinets and tool chest  
Wired for A/C Halogen Outside lights  
Two 4 foot doors on driver's side  
One four foot escape door on passenger's side  
2 spare tires  
Asking \$12K (214) 403-5686

## FINANCIAL REPORT

By SHERRYE COLEMAN

### NCRS CHAPTER FINANCIAL STATEMENT

Opening Balance: \$ 19,092.33

#### INCOME

Membership Dues \$ 80.00

Events (chapter meets, schools etc.) \$ 14,924.50

Other \$ 2.92

Total Income \$ 15,007.42

#### EXPENSES

Events \$ 2043.74

Dues Related \$ 0

Newsletter \$ 0

Other \$ 1501.67

Total Expense \$ 3,545.41

**Closing Account Balance \$ 30,554.34**

## ATTENTION MEMBERS

*DID YOU KNOW THAT ALL TEXAS NCRS MEMBERS ARE ELIGIBLE FOR FREE ADVERTISEMENTS IN THEIR NEWSLETTER?*

*DO YOU HAVE EXTRA PARTS YOU NEED TO SELL? PARTS THAT YOU ARE NOT ABLE TO FIND? SHARE IT WITH THE FELLOW MEMBERS.*

*PLEASE FORWARD YOUR ADVERTISEMENT REQUESTS TO:*

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## JUDGING CHAIRMAN'S CORNER BY DAVID KING

### Judging Chairman's Report

It was baptism by fire but now at least my first regional is behind me as chapter judging chairman. The Lone Star Regional in Killeen was a great success and in no small part to the team effort of everyone involved. I would like to single a few out for special recognition.

1. Tim & Carla Ehlers for dealing with all the registration issues. Hat off to Tim for changing the Excel program to include all the information in a format that I could easily merge into email to owners. This made it so much easier to keep the line of communications open to the car owners which made their lives easier with regard to the meet. A special big hug to Carla for putting ALL (and I mean ALL) the registration forms and insurance info in a three ring binder and listed alphabetically no less. You two have set the bar high so now I plan to expect this level of commitment every time.
2. Gary Chesnut for laying out the floor plan for the cars in the CC but more importantly being patient and changing it a few times based on my suggestions.
3. Ken Robb for dealing with the floor covering issue. No small job and no small expense. In the end, it could not have worked out better.
4. Charlie Cadenhead for buying me another printer and then returning after the meet just so I could use the power cord because my "old timers" disease got me when I forgot my power cord.
5. Teresa King for checking in all the car owners on Thursday and directing them to Bill King for cold starts. Also for running countless errands, picking up supplies and stuffing many owner packets and all while looking really good.
6. Bill King for coordinating the parking. I had a lot of stress figuring out the best way to get the ops checks done and the cars parked inside the CC in an orderly fashion. There was not room for the cars to come in at random as in Waco. Bill and his team were able to get the cars cold started off the trailers and the staged in the parking lot behind the CC. As ops continued Bill was able to move the cars inside in order of year so that we were able to get all the cars in the space that was allowed. It went better than I could have even imagined. I even think Chesnut was impressed (no small feat).
7. The Car Owners. Last but not least, thanks to all the owners for the cooperation in getting the cars in and out of the CC. Everyone was on time and followed instructions very well. Not to mention that without the owners there are no cars and without cars there is no meet, so a great big thanks again to all the car owners.

If I missed anyone it was not intentional. As I said above, it was a team effort and everyone that helped is appreciated and should be proud of a job well done.

There were 73 cars at the meet in the following categories:

- 55 - Flight cars
- 9 - Performance Verification cars
- 3 - Bowtie display cars
- 2 - Duntov display cars
- 4 - Sportsman cars

The awards were handed out as follows:

- 39 Top Flight
- 15 2<sup>nd</sup> Flight
- 1 3<sup>rd</sup> Flight
- 4 PV pass

Again what a great success everyone involved should be proud.

**JUDGING CHAIRMAN'S CORNER**  
**BY DAVID KING continued**

With no regional planned for next year the powers that be are busy planning several events to keep all the faithful busy. As judging chairman I want to try to make available to chapter members the opportunity to get judging experience, judging points and car judging to make up for not having a regional. Toward that goal there are plans to have at least three chapter judging meets in 2010. I also hope to have a judging school or two and maybe even a mini meet/tech session if timing permits. The first chapter meet will be in Houston as part of the Chevy Expo March 19-20. The other two will be in Austin and Dallas respectively and there will be more about those in later Tailpipes.

Lone Star Regional Results

Member First name	Year	Award
Richard Hale	1958	Top Flight
Ray Rabalais	1959	Top Flight
James Morgan	1960	Top Flight
Donald Crowe	1961	Top Flight
Herb Force	1963	Top Flight
Michael Harling	1963	Top Flight
JC Cherry	1964	Top Flight
Terry Michaelis	1964	Top Flight
Roger Bradley	1965	Top Flight
Scott Knepper	1965	Top Flight
Ernest Sims	1965	Top Flight
Gary Summerville	1965	Top Flight
Sonny Maldonado	1966	Top Flight
Bill Brackin	1967	Top Flight
Kirk Brooks	1967	Top Flight
Stan Chester	1967	Top Flight
Joe DeMesy	1967	Top Flight
Tim Gilmore	1967	Top Flight
Ron Napoliello	1967	Top Flight
Norris Stoute	1967	Top Flight
David & Jonathan Gulley	1969	Top Flight
Erv Myers	1969	Top Flight
Jack Barnett	1970	Top Flight
Ken Betts	1970	Top Flight
Kim Brock	1970	Top Flight
Jim Fox	1970	Top Flight
Patrick Sullivan	1971	Top Flight
John "Red" Harding	1972	Top Flight
Tim Manley	1973	Top Flight
Phillip Pitalo	1978	Top Flight
David Gulley	1979	Top Flight
Weldon Floyd	1980	Top Flight
Tony Salter	1980	Top Flight
David & Katie Gulley	1988	Top Flight
James White	1990	Top Flight
Don Cast	1993	Top Flight
Bill Keckeisen	1994	Top Flight

Bill Reinauer	1994	Top Flight
Darrell Suber	1995	Top Flight
Robert Lee Slaughter	1956	Second Flight
Tom Lainson	1961	Second Flight
Brian Grey	1962	Second Flight
Rollin Lacy	1962	Second Flight
Clark Kirby	1965	Second Flight
Gary Draper	1966	Second Flight
Teresa King	1966	Second Flight
Jack VonRunnen	1966	Second Flight
Daniel Hansen	1967	Second Flight
Rick Mezich	1967	Second Flight
Steve Williamson	1967	Second Flight
Mike Whitehead	1971	Second Flight
Peter Gregory	1973	Second Flight
Carl Russelburg	1978	Second Flight
Mike Hargreaves	1992	Second Flight

Jeff Evans 1964 Third Flight

Bob Muhs	1960	PV (PASS)
Patrick Sullivan	1971	PV (PASS)
Terry Michaelis	1972	PV (PASS)
Pete Bergmann	1989	PV (PASS)

Teresa King	1966	People's Coice
Mike Chilcote	1969	Long distance Trailered
Erv Myers	1969	Long Distance Driven

John Hilborn	1963	Sportsman
Sherri Demmel	2003	Sportsman
James Galinsky	2004	Sportsman
Dan Pyzel	2004	Sportsman
Charlie Cadenhead	2009	Sportsman
Dave Ewan	1957	Duntov Display
Larry Coleman	1962	Duntov Display
T. Noel Osborn	1967	Bowtie/Duntov
Terry Michaelis	1969	Bowtie Display
Phil Pitalo	1978	Bowtie Display



**Year 2010 dates to remember. Watch the Chapter website calendar for additional info.**

- 20-23 January - Florida Winter Regional
- 20 March - Houston Chapter Meet
- 10 April - Austin Chapter Meet
- 6-8 May - Gettysburg PA Regional
- 15 May - Fort Worth Chapter Meet
- 20-22 May - Des Moines IA Regional
- 23-26 June - Bloomington
- 7-12 July - National Road Tour to Charlotte
- 13-17 July - Charlotte NC National
- 11-14 August - NCM R8C/X Reunion
- 14-15 August - Monterey Concourse
- 19-21 August - Bend OR Regional
- 27-29 August - Corvettes at Carlisle
- 8-11 September - Columbus OH Regional
- 28-30 September - Chapter Road Tour to Albuquerque
- 1-2 October - Albuquerque NM Regional

## **Texas Chapter Road Trip 2010 September 28th – October 2nd**

The Texas Chapter Road Trip for 2010 will be in late **September**. The road trip will be in conjunction with the 2010 Western Regional, held September 30<sup>th</sup> – October 2<sup>nd</sup> in Albuquerque, New Mexico.

The tentative schedule will be to link up in central Texas around the Abilene area Tuesday morning September 28<sup>th</sup>. We will go north following the TEXAS PLAINS scenic route up into the panhandle of Texas and stay the night around Borger & Lake Meredith area. Wednesday morning September 29<sup>th</sup> we will continue on the TEXAS PLAINS scenic route which will take us to Dumas. At Dumas, we will go northwest into northern New Mexico picking up a scenic route that takes us through Eagles Nest and into Taos to stay the night. Thursday morning September 30<sup>th</sup> we will go down to Albuquerque going through Santa Fe on the way. As of now, I have not planned anything for the return home drive.

If you know or even think you might go on the road tour, you need to make your hotel reservation for Albuquerque as soon as possible due to the Balloon Fiesta being on the same weekend as the Western Regional. The host hotel for the regional is the Albuquerque Embassy suites (1-800-EMBASSY)

I will publish more information as I firm up the details. If you know any great places to visit, stay or eat let me know

John Lejsal

### **Membership Chairman Report By Bill King**

Our year is going GREAT – we've added 28 new members since our last report, giving us a membership of 257 folks!!

Please renew your membership; we had a great response to our dues mail out last spring. Still there are several members whose dues are due December 31, 2009. I will email each one whose dues are due in December, 2009. If you do not hear from me, your dues are current through December, 2010 or beyond. If you do not pay your dues current, you will be dropped from our membership list in January, 2010. We don't want you to miss out on any activities or the newsletter. For your convenience, there is a renewal form on our website [www.ncrstexas.org](http://www.ncrstexas.org). If you haven't sent in your dues, do it NOW!

[bfking@cablelynx.com](mailto:bfking@cablelynx.com)

903/983-2712

# 2009 Lone Star Regional

*By Ken Robb*

Well, the 2009 regional in Killeen was special in more ways than one for me. This was the first regional not held in Waco for me since I moved to Texas. The event was a winner for the chapter. The convention center was filled with 59 cars with 3 registered cancelling. Thanks to all who helped make this the success it was. The convention center personnel even worked with us to make it all work out. That wasn't the thoughts of many on the first day of preparation. For those who might not have made it to Killeen, the entire floor had to be covered in plastic film. Things were a bit shaky at the start of film application on whether it was such a reasonable choice of having the regional at Killeen. Ask me sometime about the film applicator assembly and film application. Thanks to all those who helped in the application and then the removal on Saturday afternoon. It was pretty nice though to have a soft floor for some of the judges over Waco's bare concrete floor. There are photos posted on line for those who might have missed them.

<http://picasaweb.google.com/Karman1965/Killeen2009#>

The adjacent Shilo Inn hosted the awards banquet Saturday night with 178 attending. A special opening was held with an Honor Guard from Ft. Hood presenting the Colors for the banquet. The solders and several of their wives were special guests of the chapter for the evening.

Special thanks to Teresa King for preparing the video presentation of the entered cars for the awards presentation. There were some special photos of certain people also worthy of mention. The registration was handled very well by the Ehlers, what with them doing a PV on the 66 and also camping out in a popup camping trailer during the event. Tim also received his Master Judge hat. John Lejsal had his usual precision team handling the car/trailer parking in a new venue. Killeen CC did have a lot of parking spaces, right John?

Judging chairman David King did an excellent job in arranging the judges, buttering up the Tabulators, and the staging for the judged car parking in the CC.

Now a bit of a change of subject. The planning is underway for the National road tour to the 2010 National convention in Concord, NC. These tours are always a lot of fun. Plan is to meet in St. Louis on July 8, with overnight stops then in Paducah, KY; Nashville, TN; Asheville, NC; Monroe, NC; and then into Concord, NC on July 13. Tours of the National Corvette Museum and the Biltmore Mansion are being set up. There will be a group traveling from Texas most likely, so mark your calendar.

Since there won't be a 2010 regional in Texas, planning is underway also for a road tour to the Albuquerque, NM regional in Sept. for the Texas chapter. 2010 looks to be a busy year for NCRS events even with no TX regional.

Again, THANKS to everyone who made the 2009 Lone Star regional the success it was. Vinnie Peters was on hand to take photos and prepare an article for Jan., 2010 Restorer.

## **Bob Cook Presented with the Chapter's President's Award**

Texas Chapter Vice President Bob Cook has been presented with a Texas Chapter President's Award for Year 2009.

Bob has generously devoted his time to support the Texas Chapter and its activities. Bob is a renowned artist and has unselfishly contributed his outstanding artwork to the Texas Chapter of NCRS, the NCRS and the National Corvette Museum. Bob's artistic work is highly visible on the Texas Chapter logo as well as on event shirts he has designed for the Lone Star Regional over the years. Bob also works hard in support of Happy Hill Farm Academy and Home, the designated Texas Chapter charity.

Bob's award was to be presented to him at the Award Dinner at the Regional in Killeen; however, due to another commitment Bob was unable to attend.

Thank you Bob, the Texas Chapter appreciates your help.

# NCRS BOARD MEETING MINUTES

By *GARY CHESNUT*

The meeting was called to order at 7:00 a.m. on July 17, 2009.

Vito and Mark thanked the host chapters and all the volunteers for the wonderful experience everyone had at the San Jose National and Bill Sangrey for the success of the road tour.

Cece Nelson tendered her resignation as Secretary to the Board effective December 31, 2009.

Bill Sangrey reported he expects to be under budget by about \$1,000 for the 2009 Road Tour. There were 81 registrations and cars. Cars were provided for a couple of Dutch members to drive on the Road Tour. Bill intends to retire from this position after the 2010 Road Tour.

John Pirkle reported on the 2010 National meet in Charlotte NC. Everything is coming together nicely. However, the schedule will not be finalized until the racetrack receives the final schedule from NASCAR.

Mark Lincoln reported that the National meet scheduled for Novi MI in 2011 is on schedule.

Darold Shirwo reported that the 2012 National meet to be held in San Diego is proceeding nicely. Committees have been appointed and media programs are set.

Cece Nelson reported that her next activity will be the 2009 elections in Regions I, II and III. Nomination forms must be submitted by Aug. 10 with ballots due between Sept. 1 and Oct. 31. The elected reps will take office in January 2010.

Gary Mortimer reported that Membership is holding fairly steady at 15,000+. The constancy is due to marketing to lapsed members.

Merchandise sales, including books, have dropped along with the economy. Partnerships with online firms are being investigated to increase sales and maximize profits.

Roy Sinor reported that several judging manuals are in progress and are scheduled to be issued by August 31, 2009. The Protect-o-plate book is just about finished and should be ready for sale December 31, 2009.

John Pirkle issued an invitation from the National Corvette Museum to attend the 15<sup>th</sup> Anniversary celebration this Labor Day weekend featuring John Hinckley's induction into the Hall of Fame and recognition of NCRS with the opening of the Archives. We have several tables for the Hall of Fame dinner so if you are going, let us know. You will still have to register on the NCM site to attend.

Vinnie Peters reported that he has enough articles for 1 ½ issues. At this point, technical articles outnumber human interest by a wide margin. If you have articles of either genre, please submit them to Vinnie.

Carlton Colclough has developed forms for chapters to fill out for the charity match program as well as a list of approved charities. Directors to distribute the form and remind the chapters of the deadline of October 1<sup>st</sup>. Matching payouts to the chapters will be made in the first quarter of 2010.

Carlton also reported that sponsorships have taken a dip due to the economic conditions. He asked for ideas and contact info for new sponsors with a view to making the sponsorship list grow.

The Judging Point database is up and running and an on-line training video will be developed. Eventually chapters will be entering results from regional and chapter meets directly into the system themselves. Once fully implemented, members will be able to check their judging and tabulating points online in their Technical Discussion Board public profile.

# NCRS BOARD MEETING NOTES

By *GARY CHESNUT* CONTINUED

From January through May [ncrs.org](http://ncrs.org) experienced over 908,000 unique visits, 5,923,906 page views and 27% of visitors viewed advertiser's pages.

The Board voted not to change the Driveline on-line posting from its current ten days after mailing.

Midway USA Chapter, in Kansas, was accepted with provisional status. A vote on their permanent status will be taken in March 2010.

## **By-Laws Changes:**

**13.3** The Secretary shall prepare the ballot to be made available to the membership both in hardcopy and online.

The hardcopy version is to be printed on the back cover of the Driveline. Only ballots that are legibly signed by a verifiable resident of the Region will be tabulated and counted. Ballots shall be returned to the Secretary and tabulated. Copied or facsimile ballots will be counted as long the NCRS membership is current. The membership # must be included.

The online version is to be accessible only through the 'members only' section of the NCRS website requiring a member to first register for access. The online votes will be held in a secured database and tabulated by the Secretary at the close of the election.

A member may use either method to vote but not both and may vote for a Regional Representative of his or her Region only. The combined results of hardcopy and online votes will be published in the next available Driveline. All Active Members shall have the right to vote for Regional Representative, whether or not they have Chapter affiliation within that Region.

**4.10** Board members attending the annual Board meeting shall be reimbursed reasonable travel and room expenses incurred. Travel and room expenses eligible for reimbursement are "additional expenses" required to attend the Board meeting.

Reasonable travel expenses equal the airfare/mileage (which ever is lowest), approved rental car expenses and hotel/room charges (not to exceed the host hotel charges).

## **Foundation Meeting**

Jeff Cook reported that he was able to purchase a \$100,000 CD to earn interest income for the foundation.

Mark Lincoln and Joan Burnett have been working on drafting applications for the NCRS scholarships – 2 general scholarships and 2 Marvin Burnett Education scholarships. They will keep the Board and membership advised.

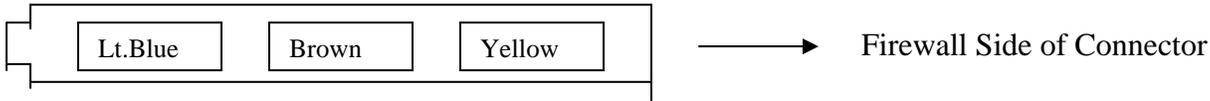
**The date for the next Board Meeting has not been selected yet but will be in March 2010 in Concord, North Carolina.**

## **Bench Test Procedure – 1966 Corvette Windshield Wiper Motor**

Tim Ehlers, October, 2009

The test procedure detailed below is specifically written for 1966 Corvette windshield wiper motor and washer assemblies but is probably applicable to other midyear Corvettes as well. To begin, a fully charged 12V battery will be needed plus 4 jumper wires with small alligator clips on each end (or alligator clips on one end and a female terminal connector on the other).

### **To bench test the Wiper Motor:**



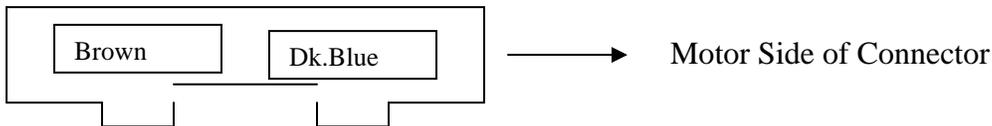
To begin:

- Locate the 3-terminals that supply power to the wiper motor.
- With a jumper wire, connect 12v+ (hot, positive battery voltage) to the Brown (center) terminal.
- With another jumper wire, connect 12v- (ground, negative battery side) to the wiper motor case.

In this sequence:

- With a jumper wire, ground (connect 12v- to) the Yellow (firewall side) terminal. This is the wiper park position.
- With another jumper wire, ground (connect 12v- to) the Lt.Blue (engine side) terminal. The motor will run at LOW speed with BOTH Yellow and Lt.Blue grounded.
- Remove the ground (jumper wire) from the Yellow terminal. The motor will run at HIGH speed with ONLY Lt.Blue grounded.
- Reconnect the ground (jumper wire) to the Yellow terminal. The motor will again run at LOW speed.
- Remove the ground (jumper wire) from the Lt.Blue terminal. The motor will PARK with only Yellow grounded.
- Repeat as many times as you like.
- Ensure you DO NOT accidentally touch Brown (hot) with a jumper wire or you'll create a monster spark and possibly damage the windings.

### **To bench test the Washer Pump:**



To begin:

- Locate the 2 terminals that supply power to the washer pump.
- Rig the center hose (fluid supply) to a bowl of water and the other 2 hoses (fluid outlets to washer nozzles) to an empty bucket.
- With a jumper wire, connect 12v+ (hot, positive battery voltage) to the Brown terminal of the Washer Pump.
- With another jumper wire, connect 12v- (ground, negative battery side) to the wiper motor case.

To bench test the washer pump:

- With a jumper wire, momentarily ground (connect 12v- to) and release the Dk.Blue (motor side) terminal. This will engage the washer pump solenoid and begin the pumping action.

## Corvette Barn Find by Tim Ehlers

### Chapter 7 – Putting On Some Miles and Judging the Results

This is the seventh chapter of the story of the restoration of a 1966 Corvette rescued from the original owner's field in central Indiana. It had been sitting outdoors for about 10 years at the time of the rescue. For a copy of [Chapter 1 - A Corvette in Need of Rescue!](#), [Chapter 2 – Body Lift and Disassembling the Chassis](#), [Chapter 3 – Reassembling the Chassis and Firing the Engine](#), [Chapter 4 – Body Restoration and Paint](#), [Chapter 5 – Seats and Interior](#), or [Chapter 6 – Exterior Trim and Convertible Top](#) contact Tim and Carla Ehlers at [tcehlers@sbcglobal.net](mailto:tcehlers@sbcglobal.net).

Hopefully you've enjoyed following along the restoration process as much as we enjoyed it. We tried to avoid any deadlines (unlike the TV reality shows!) and did our best to have fun. When we found ourselves getting stressed, it was time to put away the tools and close up the shop!

Not only are we proud of an award winning car, we're happy to have achieved other goals of the project. We enjoyed the restoration process, we did as much as we could ourselves, and the car is very drivable even without air conditioning in Houston, Texas. Carla has claimed the car as her own pointing out that I'm too tall to fit...she's right. It's interesting how much more head and leg room exist in a C3 compared to a C2 with exactly the same chassis.



As of the summer of 2009, we've Flight Judged the finished car at the Chapter level (Top Flight), at the Regional level (Top Flight), and at the National level (Top Flight). The car has been shown twice at the Houston Corvette Chevy Expo (1<sup>st</sup> Place each time and Best Representation of the Hobby awards). We've also attempted a Performance Verification three times and hope our fourth attempt will be the charm. Each time we learn more and improve the car. The Duntov Award is our ultimate goal and we feel the car is capable of achieving it.

Here's something to consider as you embark on your own restoration projects. Try to determine the ultimate award level you would like to achieve as early in the project as possible. You may avoid redoing items a 2<sup>nd</sup> or 3<sup>rd</sup> time. For example, if you restore your doors using worn window rollers, they will fail later in a PV and you'll be back inside your doors. If you warmed up the engine with a mild cam that wasn't original, you'll also fail and will be back inside the engine.

Below is a chronology of the NCRS events we've participated in:

- **Flight Judging – Lone Star Regional – Waco, TX – October, 2002: No award.**

Fresh out of the field! We thought it would be fun to solicit some volunteers to push the car onto the show floor and have it evaluated as a potential Bowtie Candidate because of the car's originality. The judges' unanimous recommendation was to restore the car due to the extensive deterioration which ruined any educational value of the car

Throughout the show, there were crowds around the car wanting to hear the story and checking out the car's potential. It was surrounded by many other beautifully restored and original cars.

- **Flight Judging – Lone Star Regional - Waco, TX – November, 2004: No award.**

## Corvette Barn Find by Tim Ehlers

### Chapter 7 – Putting On Some Miles and Judging the Results (contined)

Fresh out of the field! We thought it would be fun to solicit some volunteers to push the car onto the show floor and have it evaluated as a potential Bowtie Candidate because of the car's originality. The judges' unanimous recommendation was to restore the car due to the extensive deterioration which ruined any educational value of the car

Throughout the show, there were crowds around the car wanting to hear the story and checking out the car's potential. It was surrounded by many other beautifully restored and original cars.

- **Flight Judging – Lone Star Regional - Waco, TX – November, 2004: No award.**

The chassis and engine were finished at this point so we entered the rolling chassis for flight judging. We thought it would be a treat for people to see what a car looks like without the body. It would also be much simpler to fix any scoring deductions.

- **Flight Judging – Texas Chapter Meet - Pflugerville, TX – April, 2006: Top Flight (Score 97.1).**

We had the completed car judged first at a Chapter meet in Pflugerville, TX. The new convertible top had not arrived yet so we installed the old, unrestored top. The rest of the car was ready. After the Chapter Meet, we had our to-do list to prepare for the National Convention.

- **Flight Judging – NCRS National Convention – San Antonio, TX – August, 2006: Top Flight (Score 96.5).**

We were really proud to show the car at the Nationals. Many people had followed the restoration process and were anxious to see the finished product.

The car judged really well and earned a Top Flight award. Since we decided to retain as many original parts as possible, we took a lot of 1 and 2 point condition deductions for scratches and wear.

- **Flight Judging – Louisiana Regional – Gonzalez, LA - November, 2006: Top Flight (Score 97.8).**



We corrected a lot of deductions and hit the road with other Texas Chapter members to the Louisiana Regional. The Louisiana Chapter really knows how to show us a good time! Our car judged well again and our score continued to improve. The trip was also memorable due to trailer tire blowouts both directions. Carla finally drove the Corvette back to Houston while I pulled the disabled trailer on 3 wheels. I remember her calling to ask where the cruise control was!

# 1966 Corvette Barn Find

*By Tim Ehlers CONTINUE*

- **Performance Verification Attempt 1 – Lone Star Regional – Waco, TX – October, 2007.**

Having heard about the grueling nature of the Performance Verification, we didn't think we had a realistic chance to pass our first time out. We wanted to go through the process and experience it first hand.

Sure enough, the car failed on a noisy headlight motor almost immediately. It just so happens this was the first and only time the motor made this terrible squeal, right in front of the judges! The judges were kind enough to complete the test, though they weren't obligated to do that. In the end, the car failed on 18 items, 6 on the driver door alone.

- **Performance Verification Attempt 2 – Lone Star Regional – Waco, TX – October, 2008.**

We were better prepared for our second attempt. If the stars aligned properly and luck was on our side, we felt like we had a small chance for success.

Everything performed well and passed until about 9 miles into the 10 mile road trip when the positraction clutches made noise. This was an intermittent problem that we knew about but had our fingers crossed would not occur during the test. After that, the car failed the high speed braking test by drifting slightly to the right.

The results of the second attempt were 2 failures both occurring near the end of the test.

- **Performance Verification Attempt 3 – Lone Star Regional – Killeen, TX – October, 2009.**

We felt like we were well prepared for attempt number 3. The car was running great and everything worked the way we felt in needed to. This time, we drove the car to the event thinking that road miles were good for the drivetrain, tires, and brakes.

The test started on time but the car failed quickly due to an 1100 RPM fast idle that wasn't fast enough. The car had been sitting in the sun and it was about 95 degrees. The judge was looking for 1600 – 2000 RPM regardless of outside air temperature. Each owner is allowed 15 minutes to perform one fix. After taking part of the carburetor off and making some adjustments, the car idled at 1500 RPM just below what the judge was looking for so the test ended.

This is an example of an item which performed the way we thought it should but not in the view of the judges. It was greatly exaggerated by the weather conditions on the day of the test. This failure was pretty hard to take.

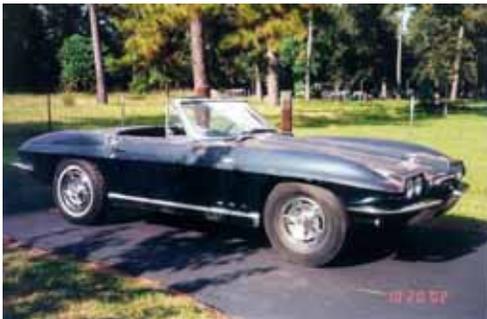
## Next steps:

We've been asked about our future plans. We're not sure what 2010 holds since the closest Regional is 1000 miles from Houston. We may attend the Des Moines, Iowa Regional and attempt the PV again.

In the mean time, we'll continue to drive and enjoy our car. It's a blast! I can only imagine what a thrill a high horsepower big block must be. When the opportunity presents itself, we'll continue to pursue the PV and improve the car for Flight Judging.

Happy motoring, they are meant to drive and enjoy!

## Before:



## After:



## Re-use of Bolts In High Stress or Safety-Critical Applications Submitted by Charlie Cadenhead

I recently followed a thread on the NCRS Tech Discussion Board regarding the use of old bolts when restoring a Corvette. I recalled that there was a similar thread approximately a year ago on this subject so I looked it up. Interesting stuff is contained in both threads. The discussion in each of the threads touched on several points regarding bolts...grades, damage, finishes, re-plating, lubrication, and torque specifications.

Because some of our members may not keep up with the discussions on the TDB, I thought it might be beneficial to put some of the information expressed on the TDB in an article for *The Talepipe*. I do not have a great understanding of metallurgy nor am I an expert regarding fasteners; therefore, I do not make a profound statement about what has been discussed on the TDB, only taking this opportunity to get some information out to our members.

Most of the bolts we use in the restoration of Corvettes are not safety-critical so they can be re-used without problems or worry.

For safety-critical applications; however, for components such as suspension, brakes, steering, engine, etc., bolts and other fasteners should be carefully inspected before being re-used. At inspection, it helps tremendously if you actually know the history of the bolt that you are re-installing on a safety-critical component of your car. Due to the age of our cars that have probably passed through numerous owners, this history is not always easy to determine.

## **Re-use of Bolts In High Stress or Safety-Critical Applications**

**Submitted by Charlie Cadenhead (continued)**

Just as a spring stretches when under stress, bolts stretch when used to hold pieces together via clamp-load. Clamp-load is the force that is exerted when a bolt or bolt and nut are used to pull together (or clamp, ergo the name!) two or more components. As long as the force exerted by the bolt(s) is not exceed by a force that is trying to force the components apart, things stay attached or secured as intended and all is well. A damaged or otherwise impaired bolt can cause a joint to fail thus we need to look as several things that can be a problem.

Loading bolts, e.g., using them for their intended purpose at a design torque specification, does not significantly fatigue them or prevent use for multiple times when they are used on properly designed joints, even those that are highly cyclical. There are; however, several exceptions to this.

First, bolts that have severe corrosion to the threads, body or the head are severely weakened and should not be reused. Removing plating from a critical use bolt and re-plating the bolt is not recommended.

Second, bolts that have been over-torqued or excessively loaded during installation, service or removal should not be reused. Bolts subjected to such stress will have yielded slightly in the area between the head and the threads engaged in the internal thread. It is recommended that a “go” ring gage be used to test used bolts for deformation.

Third, obvious wear marks on thread bodies of bolts will reduce the cross sectional area of the shank and therefore reduce strength of the bolt.

Bolts exhibiting any of the above three situations will possibly fail in use under service load. You shouldn't gamble...if the bolt is suspect it should not be used.

Torque is a means of estimating clamp-load. The amount of friction between a bolt and the mating surface, either by cleanliness, plating or lubrication can skew a torque/clamp-load relationship.

Lubrication alters friction thereby upsetting the relationship between the torque value and the intended clamp-load. Lubrication applied to Zinc or Cadmium plated bolts will result in increased clamp-load with the result that the bolt may fail or the joint can be damaged.

Oil and other lubes on threads, either external or internal alter the assembly specifications, e.g., torque. Similarly, the removal of plating from a bolt and not re-plating the bolt will cause the bolt to not deliver the intended service load under factory torque specifications.

When reassembling parts with bolts, you should use lubrication only where the GM assembly plant used lubrication. You should electroplate only the bolts for situations where the assembly plant used an electroplated bolt,

Re-plating of bolts and fasteners can cause problems. Because the release of Hydrogen gas is a by product of the electroplating process, the gas produced will be absorbed into the metal being plating resulting in a condition known as hydrogen embrittlement. Electroplating of high-hardness fasteners, say Grade 8 bolts, using your home plating system may produce hydrogen embrittlement in the piece resulting in bolts used in high-load situations failing in service. Even commercial electroplaters may not take steps to eliminate hydrogen embrittlement in items they plate.

In most General Motors applications, Grade 8 bolts have either black oxide or black phosphate conversion coatings in order to avoid brittleness issues associated with electroplating.

In summary, the following points regarding the re-use of old bolts in a restoration project are evident for

- Be overly critical of used bolts used in safety-critical components
- Closely inspect used bolts for damage to head and threads or over stressing of the shank area
- Do not lubricate or electroplate bolts that GM did not lubricate or electroplate
- Adhere to torque specifications set out in the Assembly and Installation Manual (AIM) when reassembling components.
- If unsure about a bolt used in a safety-critical component, do not use it

## Exhaust Manifold Care By Erv Myers

During the Lone Star Regional just recently held in Killeen, Texas I had the pleasure of having Bill King and Mark Donnally as mechanical judges for my 1969 small block. I take pride in my engine compartment and strive for the best original presentation possible.

Living in Southeast Texas my exhaust manifolds have a tendency to rust, which I cannot tolerate. I researched various types of coatings to prevent the rust, but originality was jeopardized. When talking to an old friend, he offered a solution to experiment with, WD 40.

Use a one inch brush and liberally coat the manifolds and anywhere else where rust accumulates. Allow 24 hours for the WD 40 to penetrate into the metal and the volatiles to evaporate. The next steps are the most important; OPEN your garage door to ensure good ventilation. OPEN your hood then start the car. As the engine increases in temperature and it draws the oil into the metal and burns the excess off. It has worked for me for the past few years.

In hindsight striving for the best original presentation possible back fired, as I lost points because it was determined that I had a coating on the exhaust manifold; there was not evidence of any rust which would be typical for a thirty year old car. Solution for this is, do not apply the WD 40 to your manifold for six months and I guarantee rust will appear in this good ole Texas weather.

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## Putting C6 Seats Into a C5 by Vickie White

I don't know about you, but the seats in my C5 just didn't seem to be supporting me, especially on long drives. I had heard that the C6 seats were much more comfortable, so I decided to get a used set and try them out. The trick is getting a good used set, as I found out. I looked on ebay and Craig's List and didn't have any success. I posted on the C6 Corvette Forum in the WTB (Want To Buy) area and got a couple responses.

My original plan was to replace the seat frames and tracks with C6 parts. I purchased a set of black C6 seats off the forum for about \$1,100. They were so expensive because they had full electrics on both seats. I have a Firethorn Red interior, which was not offered for the C6 models and I felt that the black would look fine, since the interior already was half black already. There were a few people on the C5 forum that had done this swap, but they also noted that they lost their Memory Seat function, which I did not want to do. Plan B began to formulate.

The C5 and C6 seats frames are virtually identical, as are the frames for the seat tracks. I decided to separate the seats from the tracks and swap just the seats. The tools needed are shown in Figure 1. New hog rings are recommended, although I wound up using the old ones, as I thought my box of hog rings was full, but wasn't. A power drill is also needed, along with the bits shown.

Figure 1  
Required Tools



Removing the C5 seats was fairly straightforward. Pop the buttons out of the covers on the seat track ends using a small common (flat) screwdriver, slide the cover off and remove the two front screws. Slide the seat full forward and remove the two rear screws. Disconnect two electrical connectors under the seat and slide the seat sideways out of the car. It takes just a bit more effort than that, by the way. Figure 2 shows the C6 seat compared to the C5 sport seats. There's so much black in a C5 interior, I thought the black seats would look okay. To access the bolts holding the seat frame to the tracks the bottom seat cover has to be removed.

# Putting C6 Seats Into a C5 By Vickie White continued

Figure 2  
C5 vs. C6 Seats



Figure 3 shows where to begin on the C5 seat. Remove the three hog rings holding the seat bottom top to the frame. Remove these using hog ring pliers. Figure 4 shows the C6 seat at the same location. It also has three hog rings to remove. Figure 3

Rear of C5 Seat Cushion



Figure 4  
Rear of C6 Seat Cushion



Both the C5 and the C6 use a drawstring (Figure 5) to snug the seat bottom cover up to the frame. Untie these, being careful not to damage them.



Figure 5  
C5 Seat Bottom Drawstring

Figure 6 shows the recliner handles that have to be removed. These are nasty little buggers. I took a small screwdriver and ground it flat to make it thin enough to push the clip off the stud for the recliner. I had clip hang up (cockeyed) and I couldn't get it unclipped and wound up cutting the handle in two pieces to remove the clip. There's a tool you can buy that pushes both sides off at once. Using my special method, you have about a 50/50 chance of getting the clip off. If the clip does not pop off cleanly, it gets hung up and you have to cut the handle off using a hacksaw. Ask me how I know.

Figure 6  
C5 Seat Recliner Handle



The C5 control bezel comes off easily once the two screws (one at the lower front and one at the rear) are removed. The connector in Figure 7 has to be removed to separate the bezel and controls from the seat assembly.



Figure 7  
Electrical Connector on Seat Control Bezel

At the rear of the bottom seat cushion are two hog rings. These were fun to get off. There were two hog rings on each, but they are tight up against the cushion. These hold the top of the cover to the sides, Figure 8.

wrench.

## Putting C6 Seats Into a C5 by Vickie White (continued)

Figure 8  
Hog Rigs Holding Upper Seat Cover to Bottom Seat Cushion



Once the hog rings and drawstring are disconnected, the seat bottom cover and cushion are removed as an assembly. Just lift up on the front of the cushion and pull. Figure 9 shows the two bolts that have to be removed that hold the seat frame to the seat back. There's a bolt in each corner of the frame. Use a 13mm or a 1/2" socket to remove. Depending on the seat position you may have to use an open-end wrench.



Figure 9  
Two Rear Bolts That Must Be Removed

Unclip the electronics and cut the cable ties from the inflator, as well as any cable tie that holds the seat to the frame, Figure 10. Some need to be cut, and some don't, so don't cut them all. Don't disconnect anything here, as it will all transfer to the C6 seat.



Figure 10  
Seat Electronics and Connectors

This white connector (Figure 11) is the same for both seats, so don't rewire anything here. Just unclip the connector from the seat frame.



Figure 11  
White Electrical Connector

This is the inflator and the cable tie holding it (Figure 12). Slide it around so it doesn't get hung up in the seat cables.



Figure 12  
Seat Inflator and Cable Ties

Figure 13 shows the C5 seat just before separating it from the tracks.



Figure 13  
C5 Seat and Track Prior to Disassembly

Figure 14 shows the C5 track assembly that will be used with the C6 frame and cushions/covers.

Figure 14  
C5 Seat Track and Electronics



## Putting C6 Seats Into a C5 by Vickie White (continued)

To remove the C6 frame from its track, use the same basic steps, although Figure 15 shows one difference. The C6 seat cover uses Velcro® to secure the bottom cover sides together, instead of the drawstrings. Just separate these.

Figure 15



Removing the C6 control bezel is a bit different, also. The switch handle is removed by slipping a screwdriver behind it and gently popping it off. Unscrew the one screw at the back and slide the cover off. Remove the 3 screws holding the plate onto the seat (Figure 16).



Figure 16 C6 Seat Control Bezel Removal

Remove the electrical connector from the seat switch and separate, Figure 17.

Figure 17 C6 Seat Bezel and Control Switch



Figure 18 shows the C6 track assembly. There's not much difference in the track itself, but the electronics are completely different from the C5.

Figure 18  
C6 Seat Track and Electronics



Figure 19 is the C6 frame on the C5 tracks. The C6 uses nuts to hold the frame on, whereas the C5 uses bolts. They are in exactly the same locations and bolt right up.

Figure 19  
C6 frame on C5 Seat Tracks

Two new holes have to be drilled in the C6 frame to mount the C5 switch contr



Figure 20 shows one of them. The switch panel has a stud that is used to position the panel. It just slides into this hole.



Figure 20  
New Holes for Seat Control Switch Bezel

To install the seat bottom, connect one of the two required hog rings to connect these two pieces together.

Figure 21  
Seat Bottom Cover Tabs



Figure 22 is the C5 switch control panel on the C6 seat. Both my panels were old and brittle and I'll replace them at some time in the future. Note the non-standard screw I used to secure the back of the panel. The plastic on both sides fell apart here, but you can't see it very well with the recliner handle on.

Figure 22  
Get R Done Screw Job on Bezel



## Putting C6 Seats Into a C5 by Vickie White (continued)

The front screw was a bear. The easiest way to locate the screw is to mount the switch control panel, then drill through the mounting hole into the seat frame and install the screw with everything in place. Figure 23 shows the screw in place.



Figure 24 shows the completed C6 seat on the C5 seat track. Doing it this way saved a lot of time, as it only took about an hour and a half to do one side completely. It also saved the Memory Seat function, which I like.



Figure 24  
C6 Seat on the C5 Track



Figure 25 shows the completed swap. Because the C5 has so much black already, they don't look out of place. At some time I'll swap out the seat belt assemblies for black ones, also. The C6 seats are much more comfortable, as they provide a lot better support for the lower back. I drove from Dallas, TX to Snyder, Texas (4 hours) twice. The first time I had the C5 seats and the second time I had installed the C6 seats. With the C5 seats I was pretty-well rung out after the trip and my lower back was tiff. With the C6 seats I felt fine.

As a side note, on the second trip to Snyder, TX the condensate drain plugged up and I had about ½" water on the passenger's side floor before I noticed. After clearing the drain using a cable tie, I had the water problem to deal with. It rained the entire time I was there, so tearing out the carpet to dry was not an option. One of the people I was working with suggested Depends, as he had used them to dry his carpet out. I laid the Depends on the floor and weighted them down. I changed them frequently and by the end of three days my carpet was dry. I was kind of embarrassed to buy them, but I told the clerk they were for my wife.

I hope this helps those who are looking for an alternative to recovering or re-cushioning their C5 seats. I thought about it, but it seemed like throwing good money after bad. I have kept the C5 seat covers and tracks in case I sell the car and the new owner wants them.

### **Hydrogen Embrittlement – Cause and Cure**

**Submitted by Charlie Cadenhead**

We often hear about hydrogen embrittlement in electroplated components. What is this and what is the resulting effect?

Hydrogen embrittlement is a condition that can occur in ferrous metal and is most evident in high strength steel having a Rockwell C Hardness of 30 or more. For the purpose of this article, think Grade 8 fasteners (Rockwell C Hardness 33 – 39) used in the assembly of a Corvette. Hydrogen embrittlement is not a safety issue when chrome plating bumpers because the metal is not high strength steel.

Hydrogen embrittlement is a condition at which atomic Hydrogen interacts with the atomic structure of a ferrous metal. The infusion of Hydrogen can be the result of the original steel making, subsequent forging, electroplating or even grinding operations under a certain environment, e.g., grinding on the metal with sparking occurring in a moist environment.

# **Hydrogen Embrittlement – Cause and Cure** (continued)

Submitted by Charlie Cadenhead

Within the Corvette restoration scenario, we will most likely encounter hydrogen embrittlement as the result of electroplating with either Chromium, Zinc or Cadmium or acid type cleaning, both of which produce Hydrogen gas.

Without getting too technical and therefore out of my depth, the infused Hydrogen gas tends to migrate to any defect(s) existing within the metal. This concentration of Hydrogen is sufficient enough to result in microscopic crack development at the point of concentration that begins and ends with rapid catastrophic failure.

The three (3) essentials for actual damage are Hydrogen, stress and time. A concentration of infused Hydrogen coupled with a metal under stress as is the case with a bolt securing a clamp-load sets the stage for failure over time.

The preferred method of reducing Hydrogen infusion during the electroplating process is to use processes that maximize the plating efficiency and reduce the amount of Hydrogen generated. A second method, actually the removal of infused Hydrogen after the fact, is embrittlement relief via a thermal stress relief process referred to as baking, just like a batch of cookies in your kitchen oven.

Baking is economical, simple and well understood in addition to being very efficient. Temperature during baking for most specifications is 375 degrees F, plus or minus 25 degrees F. Time of baking can be lengthy, up to 100 hours at the high end in an oven at the prescribed temperature in some cases. Typical bake times; however, are in the 20 – 30 hour range.

If it is necessary that you have safety-critical components acid cleaned or electroplated by a commercial plater, it is important to determine up-front what action will be taken to prevent or cure the associated hydrogen embrittlement issue.

## **Air Tool Hanger Rack**

by  
Gary Chesnut

When putting together the workbench layout in my new shop several years ago, I decided to use slot wall hangers instead of those little pegboard hangers. Couldn't find any slot wall hangers that would work well for all the air tools. Looked at several ready-made hangers that hung the air tools by their connectors. Problem with these type of hanger racks is that the connectors were left open and exposed to dust, etc. Could've bought one of those and used plastic caps, but decided to build my own instead.

Used a 3" x 4" angle iron 1/8" thick. Bought cheap female air quick connectors, pipe couplers and brass caps. Drilled holes in the angle iron that the pipe couplers could fit through. Screwed the pipe couplers into the female quick connectors, inserted them through the angle iron with washers on bottom and top of the angle iron, then topped off the brass pipe caps. Mounted the angle iron to the end of a work bench.

## **Brake Fuel Line Sealing**

by  
Gary Chesnut

C1's in particular are hard to get the brake master cylinder brake line block fitting and brake lines sealed to not leak brake fluid. Chuck Anderson, a fellow Texas Chapter member and friend told me about an aircraft product called "Fuel Lube". Fuel Lube is a product primarily used to seal aircraft fuel and brake lines. Fuel Lube works good in a high heat environment, does not gum up and is an anti seize agent.

Alternative to using Fuel Lube is Loctite 545, which is available from machine shop supply houses.

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## **Pulley Alignment Tool**

by  
Gary Chesnut

Proper pulley alignment for a generator or alternator can often prove to be a tricky accomplishment.

Years ago an ole mechanic told me how to make a simple generator pulley alignment tool. Buy a ¼ inch diameter rod approximately 24 inches long. Length may have to be longer depending on the length between the generator or alternator pulley and the water pump pulley.

Make a 90 degree bend six inches up from one end to form a handle. Lay the handle end into the generator or alternator pulley and the other end over the water pump pulley. Misalignment of the pulleys can be easily seen with this simple tool. Shim out the generator or alternator until the rod is in the center of both pulleys and does not touch their sides. On C1's it helps to make sure you have the correct Corvette generator mount bracket.



## **HOUSTON AREA CHAPTER MEET**

The Texas Chapter will host a Chapter Meet in conjunction with the 32<sup>nd</sup> Annual Corvette Chevy Expo at George R. Brown Conventions Center in Houston on 20 -21 March 2010. We will conduct Flight Judging on Saturday, 20 March.

Included in this issue of *The Talepipe* you will find an NCRS registration form plus a copy of the Expo registration form. All cars registering with the NCRS (no fee assessed) must also register with the Expo and pay their registration fee. **Note:** Even though we are not charging an NCRS registration fee for this event, any Chapter member who will attend the Expo on Saturday must submit the NCRS registration form. Entering your Corvette with the Expo enters you in the Expo judging for trophies.

Flight Judging will be limited to eight (8) cars with a limit of two (2) cars per class. There will be no limit on the number of Sportsman Display or Other Display cars.

Cars will be positioned on the show field by beginning at 12:00 PM on Friday at which time Operations judging will be conducted on the show field. We would like to have all cars staged on the field and Ops check completed by 5:00 PM on Friday. We will need help for the Operations judging on Friday afternoon. Cars must remain on the field until released on Sunday, 21 March at approximately 6:00PM. **The City of Houston Fire Code requires that fuel tanks on cars in the GRB Center be no more than ¼ full. Please be aware that at past events Fire Marshalls have been on-site to verify the amount of fuel in each car.**

In order to have sufficient judges to make this event a success, we require that anyone entering a car in the event serve as a judge. We shall appreciate that Chapter members not entering a car in the meet come out and help us judge. Realizing that some of you may be a novice judge, our intent is to pair you with a more experienced judge. In addition to the car owners who participate in the meet, it is a good time for other members to come out and help judge. Judges will earn 2 points for this event.

We will hold a Judges meeting and an Owner's meeting on Friday morning at 9:30 and 9:45 AM respectively.

There will be a sign-in sheet at the NCRS display that should be signed by all Texas Chapter members. If possible, please drive a Corvette to the event in order to help satisfy the Top Flight Chapter Award requirement.

At the completion of judging on Saturday, we will hold a brief Texas Chapter General Meeting as well as present the awards.

Please contact Charlie Cadenhead ( [cadencf@aol.com](mailto:cadencf@aol.com) ) should you have questions about this event.



## 2010 Chapter Meet – Houston

**Date:** March 20 & 21, 2010 in conjunction with 32<sup>nd</sup> Annual Corvette/Chevy Expo 2010

**Location:** George R. Brown Convention Center, 1001 Avenida de las Americas, Houston, TX 77010-6032

**Schedule:** February 9 Check In between 12:00PM and 7:00PM (Hall locked down at 7:00PM!)  
February 10 Flight Judging between 9:00AM and 3:00M  
February 11 Chapter Membership Meeting and Awards 4:00PM

All cars entered must register with Corvette/Chevy Expo as well as with NCRS Texas Chapter  
The Corvette/Chevy Expo website has the Entry Form (see “Entry Form” tab)

[www.corvettechevyexpo.com](http://www.corvettechevyexpo.com)

E-mail: [info@corvettechevyexpo.com](mailto:info@corvettechevyexpo.com) Phone: (941) 426 5395

**Note: Please include “NCRS” in large letters on the Expo Registration Form near your name.**

NCRS Flight Judging entries will be **LIMITED** to 8 Corvettes total and 2 Corvettes per Judging class maximum. An unlimited number of Sportsman Display and other display entries will be accepted.

### NCRS Registration Form

**Entry Deadline — Registrations must be received no later than February 28, 2010**

Name: \_\_\_\_\_ NCRS no.: \_\_\_\_\_ e-mail: \_\_\_\_\_  
Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP \_\_\_\_\_  
Tel no. work: \_\_\_\_\_, home: \_\_\_\_\_, cell: \_\_\_\_\_  
Car Entry; Year: \_\_\_\_\_ VIN: \_\_\_\_\_ Convert/Coupe: \_\_\_\_\_ SB/BB: \_\_\_\_\_ HP: \_\_\_\_\_  
Exterior color & (code): \_\_\_\_\_ Interior color & (code) \_\_\_\_\_  
Insurance Co. \_\_\_\_\_ Policy No. \_\_\_\_\_ Expiration Date: \_\_\_\_\_  
Car entered in: (please circle one) Flight Judging Sportsman Display Other Display

**(A copy of your Proof of Insurance coverage for each Corvette entered must accompany this Registration form and also be presented at check-in)**

Chapter Meet Registration Fee, Flight Judging Fee Sportsman Display and Other Display \$ **FREE**

Mail form & Proof of Insurance to: Charlie Cadenhead 5303 Mountain Grove Ct. Spring, TX 77379 **AFTER 1 DECEMBER 2009.** e-mail: [cadencf@aol.com](mailto:cadencf@aol.com) Phone: Res 281 379 3693 Cell 281 798 1820

I will help judge year: 1<sup>st</sup> Choice \_\_\_\_\_ 2<sup>nd</sup> Choice \_\_\_\_\_ 3<sup>rd</sup> Choice \_\_\_\_\_  
Judging Level (points) \_\_\_\_\_ I would like to be a tabulator: \_\_\_\_\_

**Anyone entering a Corvette in Flight Judging is required to be a Judge but not for their own Corvette.**

Hold Harmless Agreement: I agree to insure my vehicle and property against loss, damage and liability and to provide proof of such insurance to NCRS at time of registration. I agree to assume the risk of any and all damages or injury and to indemnify and hold harmless NCRS, its officers, agents, employees and chapters for acts or omission which may result in the theft, damage, or destruction of my property or injury to me or to others occurring during or as a consequence of this meet, wherever located.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Please monitor the Texas Chapter NCRS web site [www.ncrstexas.org](http://www.ncrstexas.org) for any updates**

