

NCRS-RMC



SEPTEMBER - OCTOBER 2002

Issue 9 & 10

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VISIT OUR WEB SITE AT

CHAIRMAN'S MESSAGE

By Ralph Ridge

3130 miles. That's how far we drove round trip to the Monterey convention in our '61 Vette. Of those miles, the most memorable were the six laps we did around the Laguna Seca track (three with NCRS and three with the Solid Axle group). What fun!

In addition to the NCRS Road Tour and convention, we participated in the Solid Axle convention activities, the C5 Birthday Bash West, several local car shows (even won a trophy at one), the Laguna Seca historic races, the Concours d'Elegance at Pebble Beach, and other

activities too numerous to mention (including Hot August Nights on the way through Reno).

Speaking of the NCRS convention, RMC came home well represented and proud. Both members who went for flight judging, Vance Davis and Chris Watson, came away with Top Flight awards (Chris also won Ladies Choice). Jack Humphrey and I were successful at our re-Founders and Howard Loomis collected his Bowtie fifth star. Several other members and enthusiasts from Colorado attended and enjoyed the many activities. Jerry McCormick and Glen Reiff brought their '62 fuelies just to have a great ride during the events. Several members, including Weldon Montgomery, coordinated West Coast family visits with the convention.

The committee for the convention at Hershey, PA in '03 gave a presentation. The facilities look outstanding with lots of great activities planned. Mark your calendars now and get those cars ready. As far as RMC sharing in the '05 convention at Park City, UT, NCRS tabled the proposal by the Bonneville chapter. So that appears to be a dead issue for now.

Looking forward to next year, have you heard about the 50th birthday party that Chevrolet is planning in Nashville next June? This is the first time Chevrolet has been the sole sponsor of an event of this magnitude. There will be a caravan leaving Denver on June 24th to arrive in Bowling Green on the 25th, then on to Nashville for two days of events. I have a feeling this event will be HUGE! If you think there is even a remote possibility that you'll go, get your reservations in NOW! You can always cancel at a later date (no

penalty if by May 1st) if unable to attend. For more info go to www.corvette50th.com. You can get info and register for the caravan at www.nationalcorvettecaravan.com. This should be a once-in-a-lifetime party

Save the Wave, Ralph



JUDGING

By Jack Humphrey

The Long & Winding Road Home

Several club members mentioned they enjoyed my last article regarding a travel incident with my '71 Corvette. Basically, I blew a radiator driving to an NCRS Regional meet and recovered by pulling the radiator, renting a car and asking for help from fellow NCRS members at the meet (folks from another chapter/another region). They pitched in to help me in grand fashion and I got back up and running in short order.

This **IS** what you can expect traveling NCRS circles! I've yet to find members abandon their club mates. I've seen some go to extraordinary lengths to help a 'stranger' based solely on the common bond of NCRS membership. If you haven't put your vintage Corvette on the road in a club driving function, you're missing a **lot** of NCRS...

Back to Baby

The morning after the Des Moines' awards banquet, I packed my trusty Ahmed Motors, 1991, rental Dodge and headed back to North Platte, Nebraska. My Corvette should be waiting, ready to go. It would only be a matter of turning in the rental car, transferring luggage and paying the repair bill. I should be able to meet my RMC road mates without a hitch.

Ralph Ridge had given me his cell phone number so I could contact and finalize a rendezvous with the group. About 40 minutes out of Des

Moines, I passed the RMC caravan, waved and continued to eat up miles. I wouldn't be making gas and 'potty' stops, so I should have sufficient time to get ahead and be ready for the group.

When I hit North Platte, 'Lil Red was ready to go as planned. I stuffed my luggage in, hooked up the CB and called Ahmed to drop the rental car. As advertised, Ahmed was waiting for my call and promptly met me at his car lot. The rental bill was finalized and he dropped me back at my Corvette. Super!

I called Ralph's cell phone and got an intercept message—"This cellular customer is not in service presently." Whoops! Maybe they stopped for lunch and Ralph turned off his cell phone...

Even though Gary had fixed a hose to the engine and test fired it, he didn't do a full compression and leak down test. Being this far from home, it sure would be nice to drive 'in pack' with fellow NCRS members just in case there were collateral engine problems. I ate lunch and tried Ralph again a few times. Still no answer, so I set out for Denver on my own. Perhaps I'd catch up with the group or find them on the CB.

On To Denver

The '71 drove flawlessly. The sun was blazing, my top was down and freeway miles ticked off effortlessly. I never did find my RMC friends and don't know if I was ahead of or behind them.

About 130 miles northeast of Denver on a lonesome stretch of Colorado highway, I noticed a curious noise. It was a random 'tinkling' sound that came and went but seemed to begin when the tachometer hit +2500 RPM. I pulled over.

Under the hood, it was almost impossible to recreate the noise and the few times I thought I heard it I couldn't localize it. Engine oil was A-OK. She idled fine. But, there was something hauntingly familiar about that sound...

I continued my drive and the tinkling sound came and went. Then, I remembered where I'd heard that sound before!

It was just before the '97 Steamboat Regional. Several folks had stood over my shoulder listen-

ing and we simply could NOT localize the source of the sound.

Bad News

What it turned out to be back then was a very obscure but serious malady. The engine's crank timing gear had been defective—apparently a factory 'escape' that failed to receive heat treatment hardening. As I drove, the timing chain ate into the gear (between teeth) and the gear began to 'shrink'. The random tinkling sound (similar to knock) was slack in the timing chain and the chain randomly knocked against the inside of the timing chain cover.

The net effect of this was catastrophic! My timing chain finally developed enough slack to jump teeth on the upper camshaft gear and all Hell broke loose! I cracked a cylinder head, push rods turned to pretzels and valves 'kissed' piston domes. Needless to say, this was **NOT** cool!

Alternatives

I pulled over for a soft drink and pondered my alternatives. Without a mechanic's stethoscope, localizing the noise source was an exercise in futility. Plus, revving the engine without load might not be a smart move...

I could call for a flat bed and have the car hauled home, but that would be a pretty healthy tow bill. I was in the middle of nowhere; so dropping the Corvette, hiring a rental car and returning with my enclosed car hauler wasn't plausible either (no rental car agencies nearby).

I decided to 'gut' it out and drive carefully. I'd avoid acceleration and cruise at highway minimum speed to reduce stress. I'd watch the gauges, listen to the engine and shut 'er down at the first sign of trouble.

For over two hours, folks roared up my tailpipes and passed the strangely slow-moving little red Corvette. Each time the 'tinkling' noise appeared I tried to find cause/effect; were things getting worse? It was easy to find false patterns and I cycled through periods of depression and false elevation.

Back Home

I reached the outskirts of Denver, as the sun was getting low. The ½-mile elevation climb up Lookout Mountain to my home was arduous; you had to accelerate to make the grade! I coasted into the garage and shut 'er down. I made it!!!

The next morning I put 'Lil Red on jack stands and began to troubleshoot. My stethoscope said it was NOT a cylinder/valve noise nor was it a timing chain issue. OK, what was it and where in the heck was it coming from?

In the garage, on jack stands, I couldn't make the noise repeat as consistently as it'd done on the open road. On several occasions, it seemed the noise source was forward of the engine. No way! The only thing up front was the newly rebuilt radiator. I looked here/there for something (anything!) that could be loose. But, 'Lil Red was A/C equipped and between the radiator, fan shroud, foam air dams and the front side A/C condenser core, there was simply no visibility.

I rolled up my sleeves and began to R&R the fresh radiator. Fan and clutch, radiator shroud, and hoses came off. I tried Nebraska Gary's 'rate buster' method of sniggling the radiator out of the core support without removing the hood or loosening the core support with its A/C bolt-on accessories. I'll never know if I could duplicate that feat because once the radiator was 2-3 inches up/out of the core support the culprit surrendered!

Radiator Shop Practices

Most radiator repair shops affix a brass repair tag to their jobs to identify/track jobs in the shop as well as ID their work for warranty purposes. They usually solder these tags in a visible location for easy reading. Since this was a Last of the Mohicans GM 'correct' service replacement radiator, I'd asked Larry Holmes in Des Moines **NOT** to tag my radiator for the obvious concours judging impact and he'd agreed.

Instead of soldering a repair tag onto the radiator, he'd used a wire-on method. Gary in North Platte had simply missed the potential impact of leaving the brass tag on the front side of the radiator free to flutter in the wind. No wonder the noise was random and it was nearly impossible to duplicate with the car stopped!

Plus, with the foam air dams in place and the front-side A/C condenser installed, the brass ID tag was invisible. One snip and the nasty problem was history!

About Temp Gauge Systems

In the first installment of this article, I mentioned the need to watch the gauges in your vintage Corvette as you drive. Even though we restore and maintain our classic cars, we are dealing with 30-50 year old technology and original parts in many cases. I was able to shut my engine down and avoid catastrophic failure as a result of driver due diligence.

The 'hot Corvette' syndrome is one seen frequently. The owner always wanted a classic Corvette and he/she finally got around to buying one. Typically, these folks don't have a wealth of 'wrench' experience and they're used to the characteristics of contemporary automobile technology. They often look at the temp gauge and find it reads high (or low) compared to what they expect and panic.

I've seen a lot of money invested in replacement radiators, coolant additives, thermostat changes, fan/fan clutch substitutions that didn't remedy the 'hot Corvette' problem. There was actually an article published in the NCRS *Restorer* magazine about how to 'tweak' your temp sender to force the gauge to read accurately...

Design Alternatives

When early Corvettes were designed, GM's typical temperature reporting system was a jewel known as the 'idiot light'. This was a simple light bulb in the dash connected to an engine mounted thermal switch. When the engine coolant temperature reached designer dictated critical level, the light came on to warn.

While this was a cheap and simple method, performance drivers wanted more from a sports car. They wanted a full time, analog, temp gauge to visually observe and assess trends. They wanted to see trouble coming! Racecars deployed highly accurate temp gauge systems. But, Chevy was trying to deliver a cost effective sports car within reach of the average man...

The compromise solution was an electric temp gauge system. The heart of this system was the

AC 1513321 electro-thermal sending unit. The sender was married to a specially calibrated ammeter serving as the car's dash mounted display. The system delivered real time trend data and it accurately flagged overheat situations.

Accuracy?

If you study your classic Corvette's dash gauge, you'll note there are very few temperature reference points. You'll see something like a 100-120F annotation at the low end, a mid-scale 180-210F legend, and a pretty detailed high end warning area nicely color detailed (caution in yellow and threat warning in red) in the 230-260F range.

You may also have heard rumors that current GM/AC replacement temp senders are notoriously inaccurate. In fact, this seems justified by the text in Paragon's catalog regarding their '58-67 reproduction part. It reads, "These switches are made by A.C. They may vary in calibration, therefore causing possible inconsistencies in gauge reading of up to 30 degrees."

Well, I can't speak to the differences between Paragon's current AC temp senders vs. original AC senders from the era, but I can tell you about the original AC 1513321. Figure 1 shows the engineering drawing for this part from the AC Spark Plug Division of General Motors. You can see it details mechanical dimensions, has a drawing revision history (upper RH corner) and contains test specs as well as the part's thermal transfer function (lower LH corner insert).

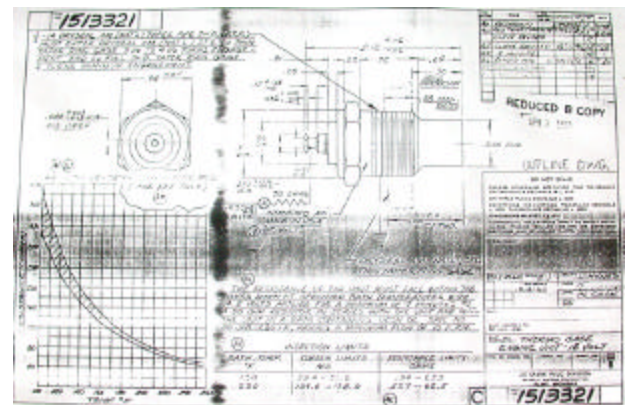


Fig. 1

If we focus on the thermal transfer function (Figure 2), several things are revealed. First, the T-R curve (temperature vs. resistance) is not

a straight line; it's what's known as a decaying exponential function obeying the generic equation:

$$R = C \text{ Exp}[-AT]$$

Where R is resistance in ohms, T is temperature in degrees Fahrenheit, Exp is the exponentiation function (natural logarithm or e^x) and A and C are constants. Decaying exponential functions are common in electrical engineering. Setting aside the mathematics of this variable resistor (also called a varistor), Figure 2 offers other high points.

Current flowing through an ammeter will produce a straight line, linear, needle deflection unless the ammeter's movement is damped by variable rate spring(s). Getting a precision match to an exponential driving function inexpensively can be tricky!

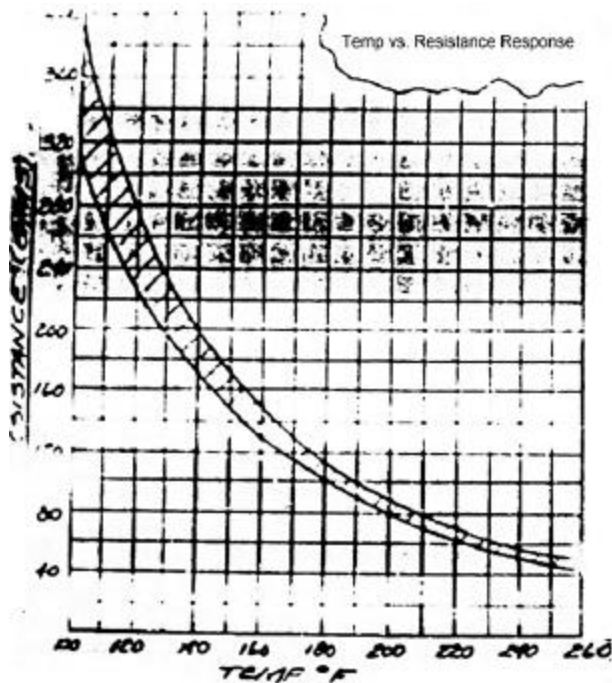


Fig. 2

The response curve of the temp sender is 'bounded' by upper and lower exponential curves. These curves form an acceptance range (cross hatched area) where individually manufactured parts can vary in precision. The acceptance range is wide and sloppy at low temperatures (120F range) and tight/narrowly defined at the high end of the gauge (230-260F range).

This tells me GM was not trying to construct a precision thermometer. It looks like they wanted an inexpensive, high volume system that would accurately predict danger conditions (engine about to enter thermal runaway/melt-down) and still give a 'reasonably' accurate visual indication of intermediate to mid-range engine temperatures.

Last, we see the TR response is undefined below 100F. Some folks measure a sender's resistance at room temperature and infer operability (good/bad). You can't do this from the GM drawing because the data isn't there. But, a savvy engineer can load the data into a computer, execute a curve fit, and extrapolate back to room temp (68F). With the acceptance boundary curves climbing steeply and diverging steadily, the room temp acceptance range is really broad (in the 550-800 ohm range).

Perspective

Who really cares if the engine's normal operating temperature is reported accurately? The temp gauge is essentially a specially calibrated ammeter. In those days, the car's dashboard supply voltage would wander a few volts based on specific battery charge condition, the generator/alternator 'cut-in' characteristics and voltage regulator adjustment. A few volts of supply rail drift translate to appreciable branch circuit current flow fluctuation and subsequent reported temperature. Cars wouldn't have a precision dash panel electrical supply 'rail' until solid-state regulator components were introduced in the 1965-69 era...

What's needed is an inexpensive display of real time engine temperature 'trend' information and an accurate warning of a bona fide overheat threat. The AC 1513321 temp sender does do this provided its companion dash gauge is properly calibrated to match.

Wanting More

But, today's owner/driver is more sophisticated. He/she is used to the precision analog/digital gauges you can 'hang your hat' on. So, it's not unusual that when that classic Corvette is finally captured, a sloppy mid-range temp gauge reading can be worrisome!

Don't get me wrong—I'm NOT saying folks should completely ignore their Corvette temp

gauges! I am saying we shouldn't be too concerned about a minor temperature reading disparity at the gauge's mid-range position (say, 10-20 degrees). Finally, before jumping to conclusions and a cascading rain of replacement parts to fix this/that, it's wise to get a second opinion of the cockpit gauge with an accurate thermometer. Is a given 'hot Corvette' symptom real or imaginary?

The Restoration Effect

There WAS a factory acceptable tolerance range in the accuracy of the temp senders and there was also a tolerance in the companion gauge. Early gauges were calibrated by connecting them to a precision voltage/current source. The assembler installed the temp gauge needle to point to a specified area in the high end, overheat range. Later gauges (around 1965) were built and connected to a controlled voltage/current source. The assembler installed a hand selected shunt resistor to make the needle point to a specified position in the overheat range.

Many of today's Corvettes have had their instrument panel gauges 'restored' including fresh silk screening of gauge faces. You can't do this without removing the pointer needle... Plus, some temp gauges can't be taken apart without removing the hand selected shunt trimming resistor. Do all gauge restorers have accurate method(s) to maintain/regain original factory calibration? Questions like this reinforce the notion of getting a second opinion on your temp gauge before jumping in to 'fix' things. Start the process by questioning the accuracy of the gauge, especially at mid-scale readings reflecting normal operating temperatures.

Jury Rigging

I made reference to an NCRS Restorer article earlier. The article ("More On Engine Overheating" by David W. Mendocha) appeared in the spring 1990 issue of *Restorer* magazine. The author used a mechanical temperature gauge to get a second opinion on the accuracy of his 1959 Corvette's electro-mechanical gauge. He found a discrepancy of 30 degrees Fahrenheit. Does the Paragon cat along footnote ring a bell?

Readings were taken at gauge mid-range with the engine in warm idle. The dash gauge read approximately 210F while the second opinion

mechanical gauge read about 180F. Instead of concluding he had no problem, the author used a brute force method to force accuracy.

He installed a potentiometer (variable resistor) between his dash gauge and the temp sender and 'dialed in' a resistance to force the gauge to read 180 vs. 210 degrees. The added resistance value needed for his car/system was 30 ohms. He concluded the use of external series resistors in the 10-50 ohm range could correct 'hot Corvette' syndromes caused by gauge/sender inaccuracy...

There's a 'Danger Will Robinson' angle to such tinkering. Without truly understanding cause/effect, you can get into a **bunch** of trouble this way! Suppose the dash gauge was properly calibrated and the mid-scale inaccuracy resulted from the natural drift of the temp sender's factory precision. The addition of a constant fixed 20-ohm (less than what the Restorer author used) series resistor is shown in Figure 3.

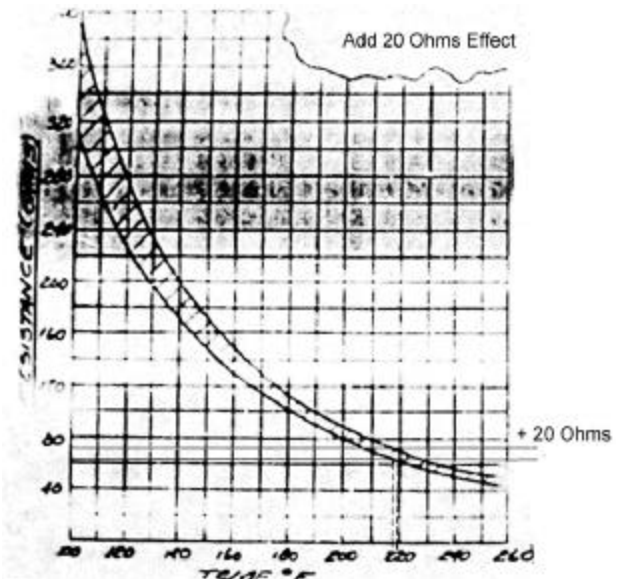


Fig. 3

We elevate the T-R response curve by 20 ohms across the board. Tack the fixed series resistor value onto the temp sender's variable resistance high-end plateau and work backwards as the sketched lines indicate. With the engine in a bona fide thermal overload condition (actual temp = 260F) the modified system would report 220F conditions. Hot, but not dangerously hot!

Figure 4 shows an even worse result. Here, we've added a fixed 50-ohm resistor in series with the temp sender. Presuming the dash gauge is indeed accurately calibrated, a 260F condition would be reported as only 190 degrees (normal driving temperature)...

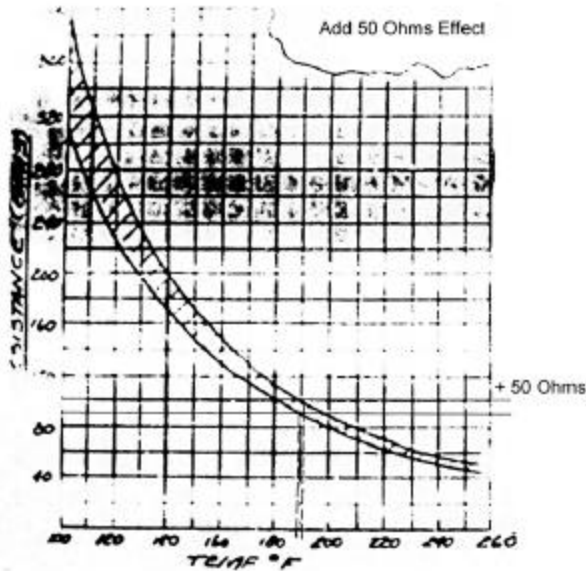


Fig. 4

Jury rigging your car's temperature reporting system to force it to read 'accurately' under normal/typical conditions without first understanding which component(s) of the system are off can be **VERY** dangerous... In my case, if 'Lil Red had been 'tweaked' this way, I could well have driven my factory original engine into thermal melt down!

MEMBERSHIP

By Jon Whiteley

As of August 24th 2002 our membership count stands at 90 – this includes thirteen new members so far this year. While Labor Day weekend unofficially marks the end of summer, there are still be several weekends of cooler Corvette weather ahead.

The most recent members to join RMC are:

- Hans Pobuda of Lakewood, CO – red 1994
- Peter & Sherry Franz of Parker, CO – 2001 Yellow coupe
- Jake & Nicole Hebenstreit of HgInds. Ranch, CO – '67 – green/green big block A/C

Welcome to the club!

A note to our newest members – if you haven't yet received your RMC cap (included with your initial membership), please see our Merchandise guy Eckhard Pobuda at the next chapter meeting. I am responsible for the chapter nametags and should have them also at the next meeting. See you then.

MERCHANDISE

By Eckhard Pobuda

MERCHANDISE – IN STOCK

ITEM	PRICE
Golf Caps...Red, White, Gray, Maroon, Natural/Green, and Natural/Blue	\$11.00
T- Shirts...Silk screen Front & Back	\$10.00
Sweatshirts...Silk screen Front & Back	\$20.00
Short Sleeved Polo...White, Red, Blue & Gray (RMC Embroidered)	\$30.00
Long Sleeved Polo...Dark Gray & Blue (RMC Embroidered)	\$35.00
Light Weight Polo...Short Sleeved (Teal)	\$20.00
Shop Coats...Gray (RMC Embroidered)	\$35.00
Chambray Shirt (RMC Embroidered)	\$30.00
RMC Embroidered Jacket (special order)	\$50.00
Steamboat Hat Pins	\$1.00
RMC Hat Pins	\$3.00
Name Tags	\$5.00

ACTIVITIES

By Bill Barcus

It's been pretty busy the past 2 months and will be the next few, before the snow (hopefully) flies.

July 4 – Parade in Monument and Picnic at Terri and Eckhard Pobuda's. Great turnout – great food, great time! Thanks to Terri and Eck for their hospitality!

July 20 – We met at Rick Nelson's to see his 6 car Corvette collection – Thanks also to Rick and Emily for their hospitality in having us!

August 9-13 – Several RMC members went to the NCRS National in Monterey: Vance & Frances Davis, Jack Humphrey, Howard & Barb Loomis, Jerry & Brenda McCormick, Glen & Glenda Reiff, Ralph & Sharon Ridge, and Chris & JoAnn Watson.

Jack, Howard, and Ralph received additional recognition for returning Founder's cars, and Chris recognition for his '67 big-block Duntov roadster.

August 18 – Tim Gilmartin won 1st in Class at Pebble Beach with his 1932 Auburn V12 Boat-Tail Speedster – Congratulations, Tim!

August 17, 18 – Monterey Historic Races: An awesome gathering of truly historic race cars. In one class, 21 of 23 cars were solid-axle Corvettes – A Corvette won the Race (go figure). AND a mid-year Corvette beat the Cobras in a great race with numerous swapping of the 1st 4 places between 2 Corvettes and 2 Cobras. Unfortunately, the last 2 laps were under caution since the 5th place car, a Corvette powered Bizzarini, ran off the track.

Mark your calendars with these upcoming events though the end of the year:

September 14	Graybeard's American Muscle Car Madness at Clement Park
September 21	11 AM Tech Session - Richard Sullivan - Fibreglass repair/finish, Corvette City
September 28	9:30 AM Fall Road Tour – Heritage Square Parking Lot. Color Tour over the Peak to Peak Highway, Lunch in Estes Park
October 19	9 AM Tech Session: Dyno Runs at Colorado Diesel, Castle Rock
November 16	11 AM Tech Session: Dan Tillaugh, Knock-off Hammer Rebuild, Corvette City
December 7	Christmas Party – Rich & Deanna Johnson's, Evergreen

See you the 21st at Corvette City for the fiberglass repair tech session by Richard Sullivan!

NCRS Rocky Mountain Chapter 9/28/02

Fall Color Road Tour & Lunch

**9:30 AM Meet at Heritage Square in Golden
Go North at the Morrison Exit I-70
(first exit on I-70 past C-470)**

**Cruise Peak to Peak Highway thru Nederland,
Lunch at Estes Park**

Questions? Bill Barcus, (303) 773-2633

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ARTICLES and MISCELLANY

**Regional Directors Comments
By Dennis Kazmierzak**

This is my last article as Regional Director for Region VI. Effective the end of September my term expires. Howard Loomis will assume the position at that time. I don't believe we will have any ceremonies, as this position is somewhat low keyed in most respects. I've tried to do a stellar job by communicating what takes place in the NCRS Board meetings and how it affects the Chapters within the Region. I'll have one report forth coming for the Monterey meeting, which I should have before the end of the month. That will be noted and sent in the last newsletter of the year.

All in all, the Chapters within the region are doing very well. St. Louis is getting ready for their Regional next year. The Kansas City Chapter continues to flourish with interesting activities for the members, and the Rocky Mountain Chapter along with the New Mexico Chapter, are working towards 2004 in Durango. More road trips and tech sessions, with a wealth of shared experience, are coming for the new members and the seasoned members within these Chapters. We hope we show and share the knowledge we've gained within NCRS to our new members for everyone to enjoy the Corvette hobby to it's fullest.

I'll remain very active in the RMC as its Vice President and as a coordinator with the coming Durango Regional. If anyone has any questions or comments regarding my past function with the Board, please feel free to contact me at your leisure. I'll be glad to talk to you. Enjoy your Corvette, I do!

D. J. Kazmierzak
Regional Director VI

CLASSIFIED ADS

For Sale:

3328 sq. ft. Corvette Warehouse and Shop. Centrally located, great access to major highways. Rare Industrial 2 Zoning (any type of business or use).

Dirk Gaddis (303) 771-8239
E-mail Racz-Gaddis@att.net

One set of 4 large-diameter stainless exhaust tips for '97 - '00 C5 stock exhaust. Fit over existing small tips. Brand new. \$75.00
Jon Whiteley (303)526-2209
E-Mail JonLWhiteley@msn.com

'65 Corvette parts from restoration. Slightly used, but very serviceable. Upper "A" frames, rebound bumpers, white interior pieces, hub caps, etc.
Dennis Kazmierzak (303) 697-0303
E-mail DJKazmierzak@NCRSRMC.org

1965 Coupe; VIN 194375S113620; 327/300; 4-speed. Complete Body-Off restoration in 1992. Driven less than 500 miles since. Silver Pearl with Black Interior. PS, AM-FM, Elec. Antenna, Tele Column. Indy Chapter 1992 & Cypress Top Flight 1993, Top Flight Grand Lakes, Oklahoma 1993 National. \$32,500.
Chuck Hanner (719) 686-8248

Set of four '63-'64 Corvette repro. KO wheels, with tires. Original GM Corvette Ads in the magazines. *Corvette News* magazines from Vol. 3 No. 1. Original T-3 headlamps.
Weldon Montgomery (303) 530-1372

Dual Axle, flat-bed trailer. \$1,000 OBO
Jim Lennartz (303) 674-0295 Evenings

'65-'66 steel wheels, one to four or five, various dates, your choice. \$100.00 per wheel or \$600.00 per set of five (match dated). 3124 holley carb., dated 565(real, not a re-stamp). \$800.00 or serious offer.
1961 Owner's Manual with insert card. Good condition. \$100.00 or trade for 1965 Corvette parts or other Corvette parts..
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1980 Corvette, 350, 4spd, new-beautiful custom paint, tan interior, new B.F. Goodrich tires. Prior owner documents engine, clutch & rear end rebuild at approximately 100k miles. T-top. New belts, power antenna, p.w. motor, rebuilt alt. tinted glass. \$19k or best reasonable offer, for fast sale. Serious inquiries only. Jim Richards cell 303-210-6331.

Advertisers: Please update the Newsletter Editor with any changes.
THANKS

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TECHNICAL ADVISOR CorvetteMasters@cs.com Term expires: 12/31/2002	Gary Steffens (303)762-8388
COMMUNICATIONS RDav@iname.com Appointed position	Bob Davis (303) 838-9529

Membership in the NCRS is open to persons interested in the restoration, preservation and history of the Corvette produced by the Chevrolet Motor Division of General Motors Corporation from 1953 through 1982. NCRS is not affiliated with Chevrolet or General Motors.

Membership in the Rocky Mountain Chapter of the NCRS is open to all members of the NCRS National organization. Dues are \$30.00 for the first year, and are \$20.00 per year for renewal. First year dues entitle the new member to a Chapter ball cap and membership name tag.

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