

Official Newsletter of the Ozaukee Corvette Club



Jim - first vette out this spring!

Ozaukee Corvette Club Post Office Box 371 Cedarburg, WI 53012

April, 2013 Issue



"Cruisin' Since 1979" www.ozaukeecorvetteclub.com facebook.com/OzaukeeCorvetteClub April 2013

President:Darryl GreeneVP:Ron GieseSecretary:Sue MontanaTreasurer:Jim BakerGovernor:Wayne RichterDirector:Gregg Goetz

Membership:Jeff MyersParades:Thom BrownWeb Master:Darryl GreeneAdvertising:Kay NewellNewsletter:Darryl Greene

The *Ozaukee Glass*, official Newsletter of the Ozaukee Corvette Club, is produced monthly and provided to all members, advertisers and other car clubs. Articles printed in Ozaukee Glass are believed to be accurate and correct. The Ozaukee Club assumes no responsibility for the completeness or correctness of the articles. The Club meets at 5pm on the 3rd Sunday of the month at:

Flip Side Cafe Cheyenne Court - Grafton 262-474-0140 Dinner at 5:00 and meeting at 6:00



# **Ozaukee Corvette Club Meeting Minutes - April 21, 2013**

Call to Order: Meeting was called to order by President Darryl Greene at 6:00 p.m. at Flipside Restaurant in Grafton. There were 14 members in attendance.

V-President's Report: Ron Giese went over newsletters and other brochures that had come in the mail.

Treasurer's Report: In Jim Baker's absence, Wayne Richter went over the treasure's report.

Advertising: Darryl Greene reported in Kay Newell's absence that everything is up-to-date.

NCCC: Wayne Richter reported on the upcoming events: June Sprints, Convention this year in Bowling Green, KY – June 24-28.

50/50 Drawing: Tony and Michelle won the 50/50 drawing. Congratulations!

#### **Old Business:**

Chili Cook-Off: Darryl Greene reported that there was an article in the Ozaukee Press and a picture of Margaret Greene with her award winning chili. The article went over the details of the event and explained the six area Corvette Clubs that participated, and the Ozaukee Corvette Club donated \$2,100.00 to Family Sharing of Ozaukee County.

#### **New Business:**

April 27th is the date for the "Shake- Down Cruise" with April 28th as the rain date. It will be the 1st cruise for 2013. Sign-up sheet is on the Club's website. Please join us for the 1st cruise of 2013. We will meet at the Target in Grafton at 10:45am - leaving at 11:00am. An Ozaukee Press photographer will be present

The subject of the newsletter being sent by mail to our advertisers and to our members that need to have it mailed was discussed, and it was determined that Ron and Jeff will discuss which advertisers they think should receive printed copies.

Jeff Myers and Ron Giese looked into purchasing vinyl cling parade signs for the Ozaukee Corvette Club that go on the upper portion of the car's windshield. The cost will be around \$30 & each member will be responsible for buying their own. More info to follow.....

The first parade of the year will be on Memorial Day in West Bend, please check the sign-up sheet.

Lion's Chicken Roast: OCC was approached by the Lion's Club to put on a Car Show at their chicken roast June 2nd from 11am-3:00 pm. If you are interested, please meet at the Harris Bank Hwy 60 & 12th Ave at 10:45. We will drive in together to set up for the show. Please check the sign-up sheet.

Ride Around the Lake: June 2nd – If you are interested in going, please meet at Hwy 45 & 33 Park & Ride at 7:45am. Any questions please call Ron Giese or Leon.

All enjoyed this month's Feature Presentation on the C1 1953-1962 by Wayne. Next month's Feature Presentation will be on the C2 1963-1967 to be given by Jeff Myers. Don't miss it!"

Motion for adjournment was made by Sue Giese at 7:05 p.m., seconded by Gregg Goetz.

The next meeting will be May 19th, 2013 at Flipside – at 5:00pm for dinner – 6:00pm for meeting.

Respectfully submitted,

Sue Montana-Myers, Secretary

#### **Upcoming Events**

#### (See web site calendar for latest information) 4/27 Spring shake down cruise 4/28 Rain day for shake down cruise 5/19 OCC meeting

5/27 Memorial Day parade
6/2 Lions day car show - see details below
6/2 Trip around lake
6/4 Brew City 1st car cruise night
6/9 Corvette Adventures in the Dells
6/22 Jackson Car show - free admission
6/? Thiensville parade
6/? Grafton parade
6/15 Elkhart lake event
6/16 OCC meeting
7/? Cedarburg parade
7/20 Fish Day parade car show to follow parade
7/21 OCC meeting

### **Grafton Car Show**

At our February meeting, Gregg presented the possibility of the Lions Club asking us to support them by putting on a car show at their June 2nd Chicken Roast. The event is a great fund raiser for an organization that contributes greatly to the community. We agreed at that meeting to do the show, once it was confirmed, and, as a result, our club will be a feature this year at Veterans Park. It's realized that this is the same day as the Trip Around the Lake, but please consider foregoing the experience this year to support our club and the Lions.

# Chili Cookoff

From the Ozaukee Press: The Ozaukee Corvette Club hosted a Chili Cook Off on March 24, 2013 in conjunction with five other area Corvette clubs as a charity fundraiser. The event is in its 21st year with clubs hosting it on a rotating basis. Family Sharing of Ozaukee County was the recipient this year of about \$2100, raised from individual and club contributions and a silent

auction at the event. Other clubs involved were Badger State Vettes, Brew City Corvette Club, Kettle Moraine Corvette Club, Muskego Corvette Club and the Wisconsin Corvette Club. The Ozaukee Corvette Club was this year's host due to Margaret Greene's 2012 winning entry, with her club then having the honor of putting



Check presentation at Family Sharing with the director and some of the food panty volunteers



Jeff wins best salsa!

together the event. The Delafield Brewhaus has been graciously donating their space and staff for the Chili Cook Offs over the years. Winners are announced in three categories: chili, salsa and chocolate dessert, and everyone gets plenty to eat. Family Sharing's client base is comprised of Ozaukee County residents, which includes lowincome families with children, the elderly, and those who deal with serious physical and mental health issues. 44% of the individuals served are under the age of 18 and 30% of individuals who participate in the program are 65 years of age and older. Almost 30,000 pounds of food are distributed to 600 households per month, and each month nearly \$6000 worth of clothing, household items & furniture are given free of charge from the resale shop to program participants. 100 volunteers donate their time to Family Sharing each week.

#### **Another Ozaukee Press Article**

The club has been getting some nice publicity with the Chili Cookoff information running in the Ozaukee Press. The editor, after talking with us about the club and the fund-raiser, decided to run an article about Darryl & Margaret's story about their 1984. It includes some nice information about the Ozaukee Corvette Club: "The Corvette... turned out to be more of a gift than either expected when they joined the Ozaukee Corvette Club. "We became immersed in the culture and met a lot of really fun people," Mr. Greene said. At the time, Mrs. Greene... figured if she went once, her husband would be satisfied and she wouldn't have to go again. Instead, she ended up becoming the parade chairman... and she's involved in most club activities. Last year, she won a chili cook-off held with five other



Corvette clubs. That meant the Ozaukee club hosted this year's cook-off and auction, which was held in March, and raised \$2,100 for Family Sharing in Grafton... On Saturday, the club will hold its first event of the season — a mystery cruise. Members will line up their Corvettes at 11 a.m. in the parking lot at the Target store in Grafton. From now through mid-October, members will drive their polished vehicles in area parades, including the Fish Day parade in Port Washington, display them at community events and car shows and go on organized and spontaneous cruises. The club meets the third Sunday of every month at Flipside Cafe in Grafton, where members talk about their vehicles and how much horsepower the cars have, argue over which generation and year is the best, share photos, offer advice and plan events. "People have very strong feelings about different generations. The new one (2014) will be the seventh generation Corvette," Mr. Greene said. Somehow, the 84 morphed into a 68 in the article, but it was well written. Look for more publicity - an Ozaukee Press photographer hopes to be at the start of our April 27 cruise. Thanks to the Ozaukee Press for their fine reporting! (Ron made me include this picture! - Darryl)

# Tech Tip- Dyno Tuning...definitions and the basics

At one of our parades, our members Tony and Michele were talking with me prior to the parade; and the subject of dyno tuning came up. They asked just what is a dyno tune, because supposedly their Cyber Grey C-6 has had this done by the previous owner. I glanced at his car and the time remaining before we were to move out, and told him I would need a little time to put my thoughts together.

Dyno tuning sounds very mysterious and high tech; and it can be. However, I think it is sometimes over used by people that may not actually know what it is, or could be. In other words, there are guys out there who think dyno tuning is nothing more than throwing a bunch of parts at a Corvette- then try to get them to work together using their dyno. There is also dyno tuning after extensive cylinder head work, and camshaft selection followed up by a reprogramming of the Corvette's computer (this is also known as "re-flashing" the computer). So where does one begin? Let's do a little overview of definitions, and the process; so you can be a little more informed about dynomometers and dyno tuning.

For the sake of simplicity, we will break down dynos into 2 types- engine dynos, and chassis dynos. They both measure the engine's output in horsepower and torque. As rpm increases, graphing lines display the torque and horsepower output at every rpm level. If you have heard the expression "power curve", this is what they are referring to. When you hear someone say that their LS-3 Corvette (2008 to 2013) is now making 520 horsepower at 5500 rpm, you may ask yourself, how can that be when my LS-3 (as delivered from the factory) 'only' makes 430 horsepower? What did this guy do, and how does he actually know this? You need not get an inferiority complex. If you ask him how that can be, he will tell you he has been to a dyno tuner and had some extensive work done to his engine. Then again, if you know "Mr. 520 Horsepower" is prone to exaggeration, well just consider the source...The actual truth may lie somewhere between 430 and 520 horsepower. Bottom line...his Corvette is more quick than yours, and you want that same level of power. Find the good guys out there, and ask good questions. The ethical shops will gladly answer all your questions, and deliver on their promises. Let's start our discussion by defining the types of dynos, and their operation.

The engine dyno is attached to the engine at the flywheel to measure and graph horsepower and torque output of the engine. High-end engine machine shops, and the auto company engineering departments use engine dynos to measure the progress they have made after a rebuilding or developing a new engine (like the new LT-1 in the 2014 Corvette). The engine dyno creates resistance for the engine to overcome, and the horsepower and torque needed to overcome this resistance. The results are displayed on the dyno's computer monitor. The car companies would use the engine dyno results to tell their customers how powerful their engines were in terms of 'gross horsepower'. Typically, these engines were optimized for maximum output- free flowing exhaust, non restrictive air cleaners, no engine driven accessories (air conditioning, alternators, smog pumps, power steering pumps); that would be power robbing. Cadillac and Ford were very 'creative' with their horsepower numbers in the '50s, 60's, and 70's- some say their advertising agencies must have been running the dynos. At GM, back in the day, Cadillac had a problem. The Buicks, Oldsmobiles, and Chevrolets typically produced more torque and horsepower than Cadillac, because they were just better designed engines, or better engine architecture! Cadillac rated their 429 at 375 gross horsepower... then they called their 472 at 385 gross horsepower...and then their 500 cu.in at 375 gross horsepower. In reality, the 429 was a little north of 285 gross, the 472 at 295 gross and the massive 500 cu. in. monster came in at just under 270 gross horses. This was the 'as installed' power level, further suffering from restrictive exhaust, leaned out fuel, emission devices like the Exhaust Gas Recirculation valve (EGR), Cadillac sales guys just couldn't believe that the lowly Chevrolet 427 and 454 were a lot more powerful than their engine. History has proven that compared to every other GM V8, and especially the Cadillac, the Big Block Chevrolet (396,402,427,454, 502, and 540 cu. in.) is the finest motor GM put in its' large cars. Ironically, Chevrolet intentionally UNDERRATED the Big Block so as to not draw too much attention to this incredible motor. However, they did not fool the NHRA tech committee. They factored every Chevy Big Block with 50 more horsepower than advertised when determining which class you would compete in. You may remember the 1966 Corvette with the 427/450 horse engine that was quietly changed to 425 horsepower. Also the 1967-1969 L-88 Corvette was advertised at 430 horsepower, when in reality it was in excess

of 500 horsepower...way in excess!! You know that old expression about the 'cream always rises'? Here we are, more than 30 years after the last Pontiac, Olds, Buick, and Cadillac V8's were cast and put into cars- all victims of poor emissions, mileage and inefficiencies. However, the big block Chevy is still available in Chevy Silverados, GMC Sierras and through GM Performance Parts. The 'Gross' horsepower and torque numbers are still relevant, because they help an engine tech determine the effects of small changes they may apply to the engines they are working on. This is very evident with NASCAR racing teams. These master engine builders are looking for every horsepower and foot pound of torque they can find. They are constantly testing every imaginable configuration of fuel, ignition curves, cylinder head design, compression ratios, and new hardware. Hence we have 355 cu.in. engines producing 750 to 800 horsepower 'at the flywheel'.

The chassis dyno is more common. This type of dyno is built into the floor of the shop, and typically has the car's drive wheels positioned over large rollers. This may also be called a 'driveon dyno'. The car is prepared by securing the car with chains or strapping on the rollers so it cannot possibly move off the dyno roller wheels. This type of dyno measures rear wheel horsepower and torque. It is felt that this is a more reliable and realistic method of measuring the entire car's output. It was once said by many car magazine editors, that any car producing over 300 rear wheel horsepower is one of the fastest cars on the road. Remember the 1969 Camaro with the 396/ 325 hp motor? A very quick car, yet only 195 to 200 rear wheel horsepower! My 1967 Corvette with the awesome 427/ 435 hp Big Block produced "only 315" rear wheel horsepower. Yet the C-5 Corvette with the incredible LS-1 has consistently "rolled" 305 to 310 horsepower, absolutely bone stock! As one magazine writer observed, "the (then) new LS-1 with 345 horsepower is the fastest 345 horse engine he has ever driven...it is also the fastest 360 horse, 375 horse, and 400 horse engine he has ever driven! Is Chevy underrating engines again?

One can also measure how efficient a car is while operating at part throttle. For example, the typical C-5 Corvette with LS-1 power needs to produce @35 horsepower to turn the dyno roller wheels at 65 mph. 75 mph needs @55 horsepower. The efficient induction of fuel, and the complete combustion of that fuel makes that 35 horsepower needed to go 65 mph. The 55 horsepower needed to travel at 75 mph shows a dramatic increase in power needed to overcome the additional factor of wind resistance that is programmed into the dyno. The C-6 needs @30 horsepower to do 65 mph, and @42 horsepower to do 75 mph. The increased size of the LS-3 (6.2 liter), lighter weight and narrower body of the C-6 takes less fuel to perform the same work. Now the new C-7 is even lighter weight and more powerful. The all new 6.2 liter LT-1 produces more horsepower and torque for even greater operating efficiency and better mileage. GM is interested in building efficiencies into their products for the purpose of better mileage and lower emissions. The top speed, zero to 60, and quarter mile times are just a by-product of all the efficiencies built into the LS and LT family of engines. The tech tip here is... the next time some overhead cam snob tries to tell you what a low tech boat anchor the LS motor is, you can point to power mileage and emission numbers that make his 'cammer' look sick. 4 tiny valves per cylinder that can't breathe as well as an LS motor's 2 huge valves, because of engine architecture that is simple and flows incredible amounts of air. The Ford Mustang Boss 302 (5.0) with 440 Corvette eating horsepower- really? More advertising guys operating the engine dyno- let's look at the chassis numbers. Oh yes, I almost forgot, the old tech LS motor with antique push rods has it's 1 and only cam snuggled down in the center of the engine block like it has been for yearsnice and low for a low center of gravity. Those high tech 4 cam Hemi's, 5.0 liter fords with @ 80 pounds of cams, driven by over 6 feet of timing chain that just can't wait to break, sitting real pretty on top of that engine; affecting the center of gravity by raising it which in turn affects handling.

You may remember during the introduction of the C-7, the Corvette Engineering team stated they have over 5 million hours of testing and development in the C-7's new engine; the LT-1. Much of all that testing and development time was spent on their engine and chassis dynos. Therefore, it may be safe to say that every new C-7 Corvette is essentially a complete dyno tuned vehicle built for maximum efficiency. When was the last time you ever heard of any car with 450 horsepower and 450 ft lbs of torque that could deliver 29 to 32 mpg with exhaust so clean that it exceeds any and all EPA requirements for the next decade?

The engine is central to the Corvette, but other engineering efficiencies are rear end gearing, transmission gearing, cylinder head flow, camshaft selection, camshaft advance and retard (cam phasing), Intake plenum design, transmission shift points, exhaust flow out of the Corvette (exhaust manifolds, pipe diameter, exhaust restriction, and noise levels), piston design, location of direct injectors in the combustion chambers, ignition timing, and 4 cylinder operation called modulated displacement; as well as a million other details that make this new car so incredible. The way I see it, at least right now, if anyone changes anything in the drive train from the factory engineered model, you could effect the new Corvette in a negative way. One example would be the exhaust pipes. Corsa, and all the other manufacturers are going to have a hard time improving on the new C-7. The 4 stock outlets are each a massive 4 inches in diameter, taking up all the space available for exhaust (current Corsa's are 3.5 inches). Those same standard equipment rear mufflers are electrically opened to a very loud zero restriction mode under 'spirited' acceleration. Yet, when cruising, they are very quiet. If you think you need to remove the pipes to put in a crossover pipe, save your money, they did it. Something else they did was to add a second set of electric open/close valves in the pipes that come up and over the differential. These valves are used during 4 cylinder mode. Change these pipes, and you will have a very annoying check engine light as well as a very poorly running Corvette in the 4 cylinder mode. Another first in the LT-1 is the use of a camshaft phaser. This device can advance or retard timing of the cam by as much as 60 degrees. I'm not sure how any of the aftermarket superchargers are going to work with these cam phasers. The very important tech tip is- us only the specified oil weight in the engine (i.e. 5W30 or 5W20). Do NOT, under any circumstances, use any weight oil other than what is specified. The reason is, the oil viscosity is crucial to the proper operation of the cam phasing hardware. If there ever was a car that will be tough to improve upon, the C-7 will be it...at least for the near term.

Those of you with C-1 through C-6's can have your engines dyno tuned, but their are some cautions. I have personally sold chassis dynos to guys that had neither the patience or the intelligence to know how to use them. These guys would typically perform a baseline test to find out just what kind of maximum rear wheel horsepower your Corvette made before he started to throw a bunch of aftermarket parts at your car. He would try to get the parts to perform somewhat together in a coordinated effort without setting a "check engine" light; and then show you a before and after readout. When these less than ethical dyno guys are asked if they have adjusted the various programming tables in the computer program, you may get an elusive answer. My experience has been, that the great dyno tuners rarely share their secrets- they just deliver a great performing car.

There are not many Chassis Dynos in the U.S. that are large enough to read horsepower in the 500 to 700 range. There are a lot of guys throwing big numbers around when they talk of their engine horsepower. A massive 3 to 5 story building would be needed to store enough water to provide rotational resistance for a dyno to effectively measure 500 to 700 horsepower. Another type of chassis dyno is called an "eddy current" dyno that uses electricity to create resistance in the rollers. The city of Milwaukee had an eddy current dyno they used to test fire equipment engines. They no longer needed it, and donated it to Gateway Tech in Kenosha for their diesel program. This particular dyno measured 300 horsepower max. and had to be built into a 12 X 8X 45 foot hole. It weighed in at a svelte 40,000 lbs. Begs the question, how big a hole or building

would a 1000 horsepower eddy current dyno need? I had clients that own Sun Roadmaster or Clayton dynos, but use a Windows XP software program; and these are in common use today. These type of XP based software programs extrapolate their horsepower and torque numbers. The point here is, a lot of big horsepower numbers are being thrown around without too much credibility. remember, that 300 rear wheel horsepower is a bunch. I would also question a Corvette's ability to have sufficient tire traction, or axle shafts, transmission, and CV joints strong enough to survive 700 to 1000 horsepower.

However, there is good news! There are skilled dyno shops out there. They embrace the technology, have done their homework, and are very effective experienced dyno tuners. They will talk with you about the intended purpose of your Corvette. Are you going to road race? drag race? or do you want a strong street car? They will do a baseline run or "pull" on your Corvetteto find out what kind of power you are making. In some cases, you may have added a free breathing air cleaner and a low restrictive exhaust system and unknown to you- you have created a very lean condition. In other words, you added a high dollar air cleaner, and a complete low restrictive exhaust system and didn't in all honesty get the "bounce for the buck" you were looking for. A good dyno guy will really wake up a leaned out Corvette, and you will really fell the difference as you experience the true potential of your new air cleaner and exhaust system. A good dyno tech will know what is to be expected from a stock run. If your car is under performing compared to other Corvettes they have worked on, they will dig into any issues and get your car healthy. Based on your intended purpose, and the year of your Corvette, they will recommend a course of action. In some cases a camshaft may be selected based on your intended use. The weight, gearing, engine size, fuel delivery system, and power adders (supercharger, turbo chargers, nitrous oxide), and the style and type of exhaust system are all considerations. If your motor is essentially stock or modified extensively, they will make recommendations to increase power.

The simple answer to all this is to correct wear issues- oil consumption, loss of coolant, build durability in the motor to handle the power increases, flow the heads to the camshaft, reprogram the vehicle engine management computer to handle all the modifications, and allow the engine to come to its' full potential. The LS motors can be made so powerful, with effective dyno tuning, that Corvette owners may need to be cautioned as to the new lethal nature of their cars. Food for thought...would you allow your 17 year of son to take your 500 or 700 horsepower Corvette to the Prom so he can really make a grand entrance? This is a car that could ensure that he never sees his 18th birthday. These cars are a lot of fun, but when there is 500 to 700 horsepower under your right foot, a new level of responsibility has to take over. As for our 17 year old prom guy-you have to be kidding, but you knew that!

This was a general overview of dynomometers, and their function. Next month we will go into more detail into actual dyno tuning- the process and procedures. I have had this tech tip reviewed by Vincent Hausman from West Bend Dyno Tuning. Vincent has been very helpful, and has given me so much additional information; that a second more specific tech tip will follow.

Save the Wave,

Jeff Myers

#### Classifieds

If club members have items for advertisement, please contact Darryl Greene.





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