



NEWSLETTER OF THE PERSONALIZED CHEVROLET CHAPTER (PCC)

## PACKERLAND REGION WELCOMES PCC TO THEIR 45TH MIDDLE WEST MEET

Two PCC members attended the Middle-West meet in Green Bay, WI last month and each came away with grille ovals to mark their achievements. Both members were being judged for the first time and both were in the Sleeper class. This class is for vehicles that appear stock on the outside but have significant performance upgrades.

Paul Bellile brought his 1967 Chevy Impala convertible which is equipped with a “worked” 509 cu. in. (stroked 427) engine with a 2900 stall converter, 3:73 Detroit locker rear and producing 674 horsepower. Paul owned this car since his high school days!

Jim McDonald’s 1959 Chevy Bel Air 4 door sedan was far more sedate looking, especially with the 6



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cylinder engine. But Jim decided to make that 6 run with the big boys. The 235 six-banger was bored .060 over and is equipped with a solid lifter cam, an Offenhauser dual carb intake, an HEI ignition, dual exhaust, a 200R4 trans and a sport suspension. Needless to say, both these cars qualified as Sleepers. See page 3 for more photos of these cars.

Photo left shows Paul (on left) and Jim (on right) receiving their participation awards and certificates. Official PCC grille ovals and certificates are mailed after the event.





# CURRENT 2023 CALENDAR OF EVENTS WELCOMING PCC PARTICIPATION

- **July 19-22**

**60th Annual Central Meet hosted by the Lower Michigan Region.** With two full days at North America's largest auto museum, the Gilmore Car Museum in Hickory Corners, there will be plenty of time to tour the grounds. Our judged event will be held among some of the finest automobiles in the world. Other events are planned, including a welcome event, guest luncheon and plaque tour, concluding with an awards program and meal at a very special locale in Kalamazoo. The Host Hotel is the Four Points by Sheraton in Kalamazoo. Visit [vcca.org](http://vcca.org) and select calendar for registration forms and details. For additional info, contact Co-Chairs Tim Mehl at 734-516-9191 or Pat Mehl at 269- 217-1253 or [pat.m.vcca@gmail.com](mailto:pat.m.vcca@gmail.com).

- **August 12**

**VCCA Eastern National Meet at the Classic Auto Mall in Morgantown, PA, hosted by the New Jersey Region.** This is an indoor meet and our event will be held in conjunction with the Professional Car Society Meet at the same location! For registration information please contact Erv and Becky Steinly at 484-269-7836 or [keystonedirector@aol.com](mailto:keystonedirector@aol.com). For general information contact Chuck Gibson at 609-221-5435 or [gibsonorgntnr@aol.com](mailto:gibsonorgntnr@aol.com).

- **October 8**

**19th Annual Classic & Custom "All Chevy" Car Show hosted by the Orange County Region. The event will take place at Connell Chevrolet in Costa Mesa, CA.** For registration Inquiries: Judy Howard, Registration Chair -- Phone: 714-270-2614 -- e-mail: [registration@ocrvcca.org](mailto:registration@ocrvcca.org) .

- **October 25 - 29**

**19th Annual Southeast Area #9 National Meet hosted by the Gulf Coast Region.** The host hotel will be Courtyard by Marriott St Petersburg Clearwater, FL. Many events are planned (Early Bird Reception, The Collection on Palmetto, Tampa Bay Auto Museum, and Banquet). Questions to Patrick Kroeger, President Gulf Coast VCCA, 727-772-7065 or cell 727-488-9759 [pkroeger@tampabay.rr.com](mailto:pkroeger@tampabay.rr.com).

- **July 12 - 17, 2026**

**2026 Anniversary Meet west of the Mississippi at Rapid City, SD.** Judging will be held at the Central States Fairgrounds. Plenty of touring opportunities. Mark your calendars!

# MIDDLE-WEST MEET

*continued*



Some inclement weather on judging day made for a challenging time for PCC judges like Franklin Gage who completed judging with limited lighting. They persevered.



See photo on left.



Top & bottom photos of Paul Bellile's car.



Top & bottom photos of Jim McDonald's car.



# What is Nitromethane Anyway?

- by Marland Davis, *MotorTrend News*, July 21, 2022 (abbreviated)

Over the last 75 years, hot rodders have tried souping-up their engines with every possible exotic fuel and power additive. After trial and error, they settled on nitromethane—a dry-cleaning solvent and sometime rocket fuel—as by far the most potent. High loads of nitro are so volatile and add so much power that engines run with it are literally skating on the edge of destruction. Nitro's volatility, its unique cackling sound, the flames shooting out the exhaust pipes—it's all become the source of myth and legend. To get the straight scoop on using nitro, we consulted a number of experts. We think you'll find that nitro truth is a lot stranger than any fictional tall tales.



Nitromethane—or  $\text{CH}_3\text{NO}_2$ —is one member of a family of explosive compounds that contain nitrogen and oxygen. Remember the old safecracker crime movies where the "specialist" had to be real careful with the small vial of nitroglycerin, lest any sudden impact cause it to explode? Then there's TNT (trinitrotoluene) and gunpowder (nitrocellulose). Yup, anything with "nitro" in it is bad stuff!

What makes them so bad is the oxygen in the nitro group, which breaks down into gaseous combustion products that create large amounts of heat and pressure without the need for further oxygen. Nitromethane and its relatives have the potential to be monopropellants; they can combust without any air at all. That's why nitromethane was once used as a rocket fuel. Fortunately for hot rodding, nitromethane also has industrial-world uses—for example, as a cleaning solvent and as an aid for synthesizing pharmaceuticals, pesticides, and coatings—which is why it's widely available.

According to most hot rod historians, nitro's first competition use in America was by Vic Edelbrock Sr. and his associates. Back in '49, Midget racer Ed Haddad came into the shop after he'd been given 1 gallon of a nitromethane-based fuel, but didn't want any part of it because he had heard "it will blow up in your face." Edelbrock added 10 percent nitro to the methanol in their 136ci V8-60 Midget car engine. With no tuning or familiarity with nitro, Vic Jr. recalls that the spark plugs were so hot they turned into glow plugs. When they tried to shut it off, the engine kept running. They finally had to throw a towel on it to get it to quit." The engine was toast, but eventually they learned to add lots more fuel, colder spark plugs, and stronger internals to stand up to both the higher output as well as nitromethane's corrosive effects. Edelbrock was able to keep the fuel a secret for a while, but with flames coming out of the exhaust, fellow racers knew something was up.

if you consider high-octane racing gasoline as the baseline fuel, replacing it with methanol—the best alcohol fuel—is worth a 5-to-10-percent power gain. But 80-to-90-percent nitro is worth two to three times the power of the alcohol. What's the secret? Nitromethane carries its own oxygen, so it needs much less atmospheric oxygen to burn - 8.7 times more nitromethane than gasoline can be burned during one combustion cycle. Although it's possible to run 100 percent nitro, experts don't recommend it. "Cutting nitro with another fuel makes the car more consistent. It'll run cleaner and there's less tendency to drop cylinders. In my experience 98 percent is best overall."

NHRA currently restricts Top Fuel and Funny Cars to a 90 percent nitro solution in an effort to hold down speeds. A normally-aspirated A/Fuel dragster can run 94 percent nitro. At Bonneville, it's still "run what ya brung."

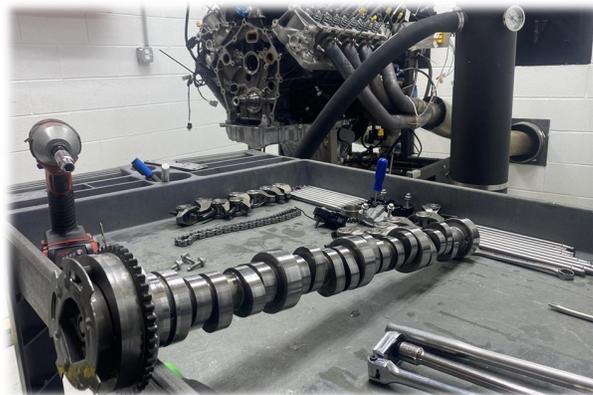
Legends persist of mixing hydrazine with nitromethane for a significant power gain. Hydrazine ( $\text{N}_2\text{H}_4$ ) was developed in World War II as a rocket fuel. A colorless, flammable liquid with an ammonia-like odor, hydrazine is so volatile that it's outlawed virtually everywhere. It's dangerous as hell and very toxic. Any mix's efficacy for improving performance is extremely time sensitive. It takes a while for the reaction to really get going, At around 45 minutes, the mix will blow up inside the engine or even self-detonate in the tank. Don't breathe it, don't ingest it, and don't get it on your skin. (I'll pass thank you.)

## What to consider when selecting a high-performance camshaft

by Evan J. Smith, *Hemmings Motor News*, 11/28/2022

The unmistakable and beautiful sound of a V8 with a lopey idle is something many a muscle car enthusiast has dreamed about. And while many stock performance engines have that rhythmic “rumpidy rump,” it just doesn’t compare to one with a “big” camshaft. Installing a big (or should we say, bigger-than-stock) camshaft is one of many common tricks to gaining power, but it’s critical that you select the right grind for your combination and driving style.

Engine builders and weekend tinkerers alike spend countless hours theorizing about camshafts whether they are looking to upgrade an existing engine or build one from scratch. Finding maximum power when doing so requires a camshaft that opens and closes valves at just the right time to improve volumetric efficiency (VE).



In the most basic terms, the camshaft controls valve lift during the opening and closing phases. Thus, the lobe design dictates exactly when—and for how long—the valves are lifted off the seats. Camshafts used as original equipment will always be a compromise. That’s because Ford, GM, Chrysler, and every other manufacturer is concerned with mileage, emissions, idle quality, tip-in engine response, drivability, and of course, max output. In contrast, racing camshafts can be designed for all-out power without compromise and street/strip cams fall somewhere in the middle. Within the camshaft spectrum, you’ll also find camshafts designed for towing and other special purposes including off-road use and truck pulling.

### What is valve lift?

One of the very first things anyone looks at is the camshaft lift. This is a critical measurement, as it determines the distance the valve is lifted off the seat, from the initial ramp until maximum lift is achieved. In general terms, more lift equals more flow, as long as there is not a valve-to-piston clearance issue and as long as the camshaft is matched to the induction, displacement, and valvetrain.

### What is camshaft duration?

Along with lift, a common specification of any camshaft is duration. This is the time in degrees that the intake and exhaust valves are open. Extending duration beyond stock can increase power, but this should be done carefully and with consideration to expected rpm range and drivability. Duration is affected by the amount of lift that is chosen as the start and finish point of the measurement and it’s common to see advertised lift and duration at .050-inch. Advertised lift is often the bigger number, however, duration at .050 is regularly used as a standard measurement. The reason is that the initial lobe ramp can be different between camshafts and it can affect the overall duration number.

### What type of lifter should I get?

Over time, engineers have developed a few different ways of linking the camshaft to the valves. Cam-in-block pushrod engines, which make up the majority of American V-8 engines, use a lifter, push rod, and rocker arm

## What to consider when selecting a high-performance camshaft *continued*

assembly to turn a rotating cam lobe into valve lift at the seat. Common lifter types are “solid” and “hydraulic” and there are roller and flat versions of each. Many engines of the 1960s and 1970s used flat-tappet lifters, meaning the lifter rides directly on the cam lobe, but toward the mid-1980s most American manufacturers moved to hydraulic-roller lifters. With this design, the lifter has a roller wheel that “rolls” along the face of the cam lobe.



A flat-tappet is always going to be limited in terms of lift and allowable spring loads compared to the roller profiles, and any hydraulic will have some limits due to sponginess with oil aeration at high rpm compared to a solid (even though these trend closer to solid performance every day). If you want maximum performance in any pushrod actuated OHV engine, a solid roller is probably going to be your best choice.

It would seem a solid lifter is the obvious choice, and indeed they are most common in various forms of racing and in all-out performance applications, but they require regular adjustment to maintain proper valve lash. If you’re wondering why you’d use a hydraulic lifter, the answer is that they are often quieter and you can “set it and forget it.” And today, hydraulic lifter technology is amazing, as engines can turn high rpm and make big power using them.

### Why is lobe separation angle important?

A critical factor in camshaft design is Lobe Separation Angle (LSA), which is the relationship between the intake and exhaust valve timing. It should be noted that two camshafts can have identical lift and duration specifications on intake and exhaust, but different LSA, meaning the lobes will be positioned differently and this can affect performance and drivability. LSA effectively dictates valve overlap, which is the time that both the intake and exhaust valves are open (yes, they are briefly open at the same time). Greater overlap will require an increase in compression and a byproduct will be lopey idle and a reduction in vacuum, especially at idle. This is something to consider if you’re using vacuum-assisted power brakes.

Why do we need overlap? At the very end of the exhaust stroke, as the exhaust valve is closing, the intake begins to open. And when timed properly, the rush of spent exhaust gasses evacuating the cylinder can and will help draw the fresh air/fuel charge into the cylinders. You can take this a step further with an exhaust system designed to maximize scavenging. This may include step headers, merge collectors, and/or an X-pipe, all of which can make a big difference in power due to improved cylinder filling. Remember, the point is to get as much volumetric efficiency as you can out of the engine.

### Do I need to degree my camshaft?

Along with finding optimum spark advance (a.k.a. ignition timing), camshaft timing (or to be more precise valve timing) is equally as important. Timing the camshaft with the use of a degree wheel ensures the valve events occur where you want them to in relation to TDC. Setting valve timing by degreing the cam ensures the valve events take place at the best possible time in relation to crank rotation (i.e. the piston’s location in the bore). Altering camshaft timing is done by advancing or retarding the camshaft with the use of adjustable sprockets on the timing chain, or with a belt drive. Advancing or retarding the camshaft in relation to TDC can affect horsepower, torque, and where peak power occurs in the rpm band. The basic rule of thumb states that advancing the camshaft builds torque by creating more efficient cylinder fill at lower rpm, whereas retarding the camshaft shifts the power-band upward.

These days, we also have variable camshaft timing, which allows valve timing to be manipulated in real time to provide the best power, emission control, and mpg, based on driver demand.

