



Newsletter of the Performance Corvair Group (PCG)

CORVAIR RACER UPDATE

MAY 15, 2017

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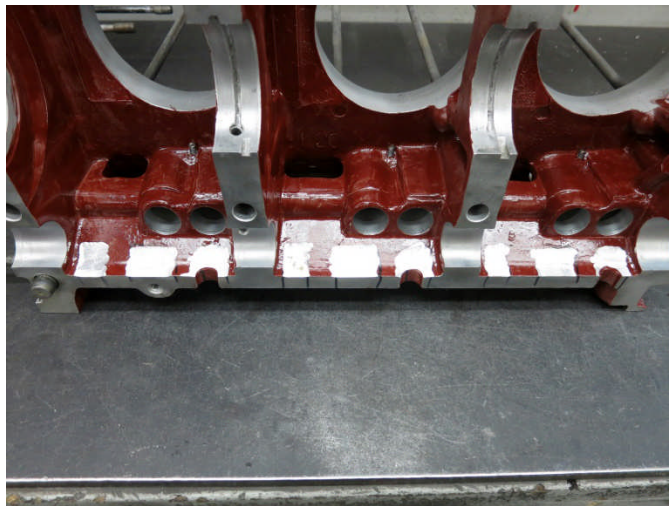
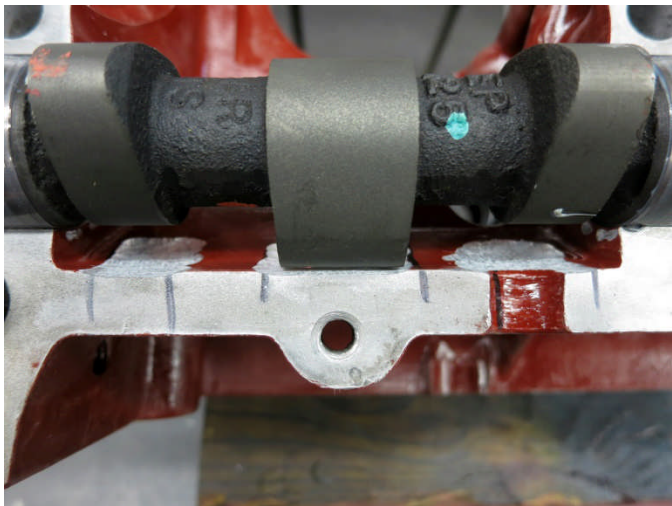


CORVAIR ALLEY NEWS, by Rick Norris



Rick sez:

In the process of verifying the rocker arm ratio of several sets of Harland Sharp roller rockers I encountered a problem I had not seen before. I was using a block half with the cam laid in and a dial indicator to check the actual lift at the came on the section I was going to use. I had a block that had previously been running an Isky 300 cam with no problems in my dune buggy. I just picked a block half at random, laid in the cam and checked out the lift.



Corvair Racer Update is written by Rick Norris and published by the Performance Corvair Group (PCG). We accept articles of interest to Corvair owners who are interested in extracting high performance from their classic Corvair cars and trucks. Classified advertising is available free of charge to all persons. Commercial advertising is also available on a fee basis. For details, email our club President. Email address shown in the Officers section on the back page of this newsletter.

PCG is one of the many regional chapters of the Corvair Society of America (CORSA), a non-profit organization that was incorporated to satisfy the common needs of individuals interested in the preservation, restoration, and operation of the Chevrolet Corvair. Membership is free of charge. To join, please use the handy form on our website: www.corvair.org/chapters/pcg.

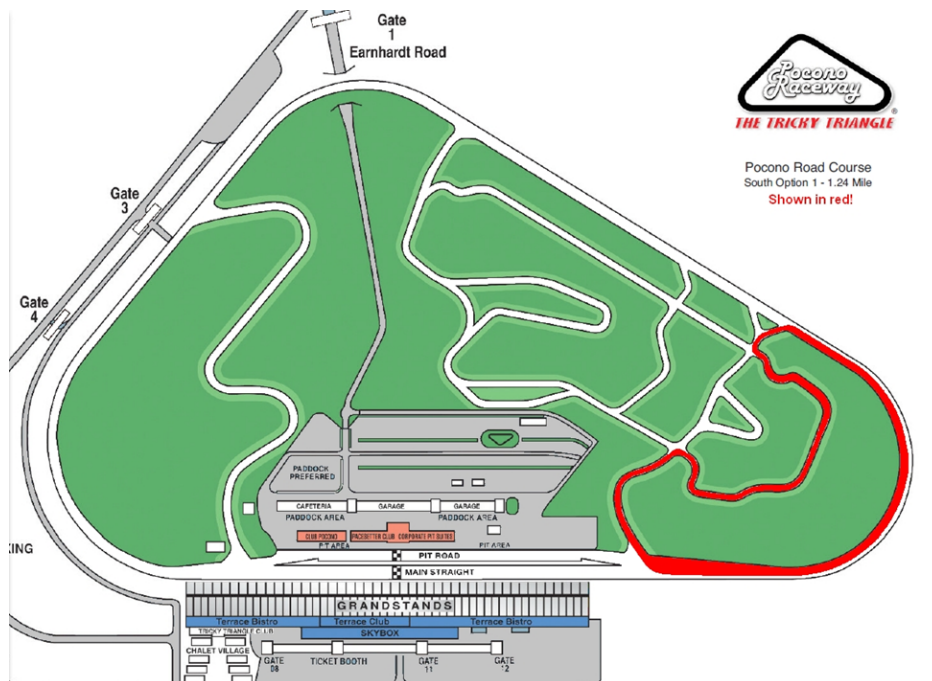
When I added the other half and lightly bolted it up the cam would not turn 360 degrees. It was jamming up like something was in the way. After pulling it apart and investigating I found half the lobes at one end were hitting the bottom of the case. This area is a close fit but most cams have cleared with no problem. This was a new Schneider with .320 advertised lift which I verified as correct. I have used several identical cams like this one and never had a clearance problem before. After a little work with a die grinder all was well. Interesting!

Terry Stafford sez:

Terry Stafford from the NECC.

We at the NECC marvel at where you guys have taken the Corvairs into the Historic & Vintage racing circuits. And we have always appreciated your support when we run regional events like Black Hawk Farms, Roebling Road, Summit Point and VIR, and the "Corvair Olympics" from Virginia, to West Virginia, to Indianapolis.

This year we acquired a hard to get 'weekend' date on one of the Pocono road courses. With you Racers in mind, I reached out to Chuck and Rick in the late winter to get the schedule you guys would be supporting. I tried to be in the middle of your early July and October events, but the track availability didn't cooperate. Just after we accepted the August date I worked out, we got bumped by the Indy Racing League who extended their use of the whole facility for testing and practice for 2 more days. We had to take the last weekend date open for 2017 as we eased back into Pocono after a 10 yr hiatus.



Although the date may not work for many of you guys, I still want to extend the offer to join us. We have Sunday July 16th on the South road course at Pocono. It's a 1.2 mile road course with an all newly paved 40' wide infield section with tight and open esses, combination turns, and internal sweepers. Then you go out onto Pocono's famous 14 degree banked turn 1 all the way to the back straight and then back into the infield portion. Another northeast time trial club we know has run this configuration jointly with the regional SCCA, and has returned every year.

For those of you that have run with us in the past, we have made one procedural change that you will all appreciate. We have gone to a Point-by passing regulation on much of the track, with open passing on the usual open sections of the track. We have seen a much better flow on track this way with the more varied car speeds we see now at our events. We use only one "grouped" driving session to start the day, then open track the rest of the day with timed runs in the late afternoon. Everyone has said it gives much more flexibility and more total track time.

Cost is \$250. We will set up a host hotel and do tech the night before for those who arrive early. I would really like to see any of you who can join us this year, but we do understand the date we were given is not the best for many of you.

Either way, good luck and have a great time this year,

Terry Stafford NECC rep. 1(631) 682-0832

From EngineLabs newsletter

Ben Strader of EFI University sets the facts straight on engine "blueprinting," and what the term really meant before it was abducted by aftermarket shops.

A common problem within today's horsepower hunting subculture is that some of the vocabulary being used by the industry no longer accurately reflects the actions behind the word, which has left many enthusiasts confused and misinformed, with one blaring example being engine blueprinting.

If you're an avid horsepower hobbyist, you've more than likely heard the term "engine blueprinting" thrown around on the web, in the shop, or at the track. Now, it's important to first point out that the term itself has not lost its meaning to newer technology or engine assembly practices, and still has its place in the industry today. But rather the problem seems to stem from how loosely the term is used by professionals and in how we educate the consumer.

Ben Strader, founder of EFI University, considers this a real weakness of our community, and has made it a central part of his business model to properly educate his students (who are both consumers and professionals) on the importance of the accuracy in their words.

The Definition Matters. When an automotive professional (whether a mechanic, tuner, writer or even tech support) does not put an emphasis on the accuracy of their words, the customer is being done a disservice. And in the case of performance shops advertising “engine blueprinting” services to your average enthusiast, at some point it will more than likely lead to miscommunication and disappointment from the owner of the vehicle, the shop, or both.

“In my opinion, the vocabulary being used by professionals and the education of the consumer is what we need to change as an industry. Not to say anything negative about the abilities of the performance shops that advertise this service, but sticking to its literal definition, using the term blueprinting in relation to a race or high performance engine build is a dramatic step in the wrong direction — in my opinion,” states Strader. “To blueprint an engine means to prepare, specify and document all of the engine’s tolerances, clearances, and materials based on a set standard. And the problem lies in the fact that currently the only standard you will find available to the public is the OE engine specifications out of the factory service manual.”

Of course at the elite level of racing, such as Formula 1, Nascar and IndyCar; a team will have multiple engines “blueprinted,” and each mill built will share exactly the same specifications as the others from top to bottom — an exact clone if you will. The difference is that this data is proprietary, and the teams safeguard this information as seriously as the Secret Service protects the U.S. President’s nuclear football.

“The problem with these public set of standards is that an OEM engine is designed to operate under a completely different set of operating conditions than a race engine. Rarely is the OEM’s number one goal to design an engine for maximum power,” says Strader. “A factory engine is more likely designed for extended periods at cruising engine speeds, frequent early morning cold starts, maximum fuel efficiency, reliability and low noise. So, this means that the clearances, tolerances, and the specific materials used in the components of those engines are not well suited for competition and racing applications.”

“Think about it like this, your typical OEM piston is made from a hypereutectic material or a cast aluminum alloy; and racing pistons are generally made from a forged or billet design. So this means that the thermal behavior of these alloys are going to be dramatically different,” states Strader. “For example, if you tried to take a forged piston and run it using the same clearances as an OEM cast design, you would stick the piston the first time you tried to run the engine because the forged material swells and expands much more as it heats up.”

“Due to these kinds of issues, I find it silly that anyone would ‘blueprint’ a performance engine to the exact factory specifications. I think what we really need to do, as an industry, is redefine our understanding of what it means to ‘blueprint’ an engine,” explains Strader. “We need to help the consumer understand that what ‘engine blueprinting’ really describes [in the performance aftermarket] is the goal of preparing an engine to a certain specification, and not necessarily to factory spec. But, what I feel is even more important for a competition engine is then understanding where that specification is coming from, and how they came up with those values.”

Competition Engine Development. It’s important to focus on the techniques, thought process and effort that goes into the ‘development’ of a competition engine. And there’s a lot more to the process than just checking all of the clearances and making sure they’re at a particular spec, -Ben Strader

“This is one of the many reasons why we launched our Competition Engine ‘Development’ program,” says Strader. “It’s important to not only focus on assembly, but specifically on the techniques, thought process and effort that goes into the ‘development’ of a competition engine. And there’s a lot more to the process than just checking all of the clearances and making sure they’re at a particular specification.”

“To ‘develop’ an engine means that we are going to evaluate the effectiveness [efficiency] of the engine in three different categories — Volumetric Efficiency, Thermal Efficiency, and Mechanical Efficiency,” explains Strader. “In a nutshell, we’re trying to cram as much air and fuel into the engine as possible, then convert as much of that fuel and air into useable energy as we can — while also trying to give away as little of that energy to the valvetrain and rotating assembly.”

Volumetric Efficiency (VE) is a measurement of the actual airflow through the engine, starting at the air cleaner and ending at the tailpipe. And to increase the VE of an engine involves camshaft profile design, cylinder head porting, intake manifold improvements, and really anything that would increase airflow through the engine falls into this category.

Your average engine harnesses less than 30-percent of the energy produced during the combustion process, and Thermal Efficiency relates to any modification that would extract more of that energy out of the fuel within our engine. This can include things like raising the compression ratio; running a certain type of fuel; determining the specific volume and path that the coolant takes through the engine; and sometimes even as a byproduct of our efforts to improve VE.

Lastly, to improve the Mechanical Efficiency of an engine means to reduce the friction and drag that leads to parasitic power losses. This is done through lubrication system design, engine oil formulations, piston ring packages, and the specific materials used in each component.

“Once you break down the process into those three categories, it becomes much more obvious that an engine is actually a long series of dependent events; and you can't modify one aspect of an engine without also altering something else,” explains Stader. “If we switched up our piston material from a standard hypereutectic OEM-style alloy to a 2618 billet, that's going to require an entirely different cylinder wall finish because that billet piston would also utilize a different piston to wall clearance and ring package.”

Engine blueprinting is just showing you how to assemble an engine, but that's not the real challenge. EFI-U's CED course revolves around the concept of 'development,' and knowing how to make changes and properly evaluate them — regardless of whether good or bad — and be able to continue progressing and moving forward with the development process of a competition engine.

