

Bluegrass Region Porsche Club of America

RUMBLE

August 2013





14

August 2013 Vol. 11 No. 8

FEATURES

14 Cars & Coffee

18 Keeneland Concours

26 Elk Creek Winery Drive

28 Puzzle at the pump



18



26

DEPARTMENTS

3 Club Officers

5 Presidents Message

5 Editors Note

7 Board Minutes

9 Track Time

11 Membership News

12 Calendar of Events

31 Advertisers Index



28

On the cover: Keeneland Concours d'Elegance



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**The Bluegrass Region
PCA Board of Directors
meets on the first
Monday of each month
Dinner and business
at 5:30 p.m.
Members are welcome.
See calendar for details.**

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President's Message By Ed Steverson



July was a fun time for the club.

We had two great events in July.

On the twenty-seventh Tim McNeely hosted his annual winery drive. Elk Creek was this years destination. Let me tell you, it was a whole lot of fun just getting there. We met in Georgetown and carved out two hours of twisties. Much of that time spent on 227.

Once we arrived at the winery, we toured and enjoyed dinner on the covered porch.

While enjoying dinner, two additional Porsches arrived. They were not with us and only by coincidence were we there at the same time. We reached out to them to talk cars and I'm pleased to tell you that we have a new member. David Hasse is out of Verona Kentucky and one of our newest members. Neil and Michelle Fisher were at Elk Creek earlier this year and met David and his wife then as well.

I would like to recognize the efforts of Tim McNeely and every-

one else that helped with the paddock at the Keeneland Concours. We once again won the Paddock Challenge. We collected \$3012.00 for the Children's Hospital, which was more than all the other paddocks put together and doubled! Thank you to everyone in the club for your generosity and support in keeping the trophy with the Bluegrass Region.

All day long the thought of rain was in our heads and the forecast, but it never happened! The Keeneland Concours turned out to be a great day. We never saw rain and the clouds kept the temperature down. The weather was one of the nicest I can remember for any concours.

The level of cars in the show were second to none. The Keeneland Concours draws outstanding examples in every class. The day is not complete until you walk the Car Club Paddocks. It is another outstanding car show in the paddocks.

I would also like to thank Bluegrass Region members Tom and Connie Jones for the outstanding job they have done bringing us this show for the past ten years.

We only have a couple of warm weather cars and coffees left. Come out, tell your friends and tell them to tell their friends, let's see if we can break 100 cars this year!

Cars & Coffee is every month on the first Saturday. We are at the Clarion Hotel on Newtown Pike. Cars start arriving at 9am. Coffee is free and a hot breakfast buffet is only \$4.99.

You will want to make sure that the last weekend in September is open. Our Fall Charity Drive will be the 28 & 29th. Eastern Kentucky has some great roads and Steve Womack knows them! This event is a grand time. You can do either a one day or two day driving event. The Womack's will host us at their home in Grayson Saturday night for dinner. Always an over the top weekend. This years charity beneficiary is Macular Degeneration. Steve's lovely wife Ann has Macular Degeneration. RSVP can be made at anytime with me until September 23rd.

I will do an event write up for September Rumble and also send emails from the national emailer.

Another great driving event is the Fall Festival, this is a high performance drivers education event. The Kentucky Region PCA and Bluegrass Motorsports really know how to do a track event. Registration opens on August 9th at

<http://kypca.motorsportreg.com>.

President's Message By Ed Steverson



If you have a desire to get to know what our cars were made for, this is it.

Twenty thirteen is the Bluegrass Region's 10th anniversary and we plan to celebrate big time on October 20th! We will have a drive that will end at Buffalo Trace in Frankfort. We will then have a private tour, then tasting, and complete the evening with dinner in their clubhouse. More details to follow in Rumble and via email.

Come on out and let's have some fun!

What we are gonna do

NATURAL BRIDGE DRIVE

On August 24th David Patrick will lead a scenic drive to Natural Bridge. We will meet at Cossi's in Hamburg at 9am.

CARS & COFFEE

September 7th will be our next Cars & Coffee. We will be at the Clarion on Newtown Pike @ 9am. A full service breakfast buffet is available for under five dollars. Tell all your car friends.

FALL CHARITY DRIVE

September 28th is our Fall Charity Drive. This is a great drive of eastern Kentucky back roads. Saturday night, our drive will end at Steve and Ann Womack's in Grayson. Ann always puts together a jaw dropping dinner! Some of us stay the night and do more driving on Sunday! Great event and Steve and Ann are great hosts. I highly recommend this one. I will be there. We will meet at the Bob Evans on Winchester Rd, in Lexington at 9am. Please come early if you would like breakfast.

MEMBERSHIP APPRECIATION / 10th Anniversary Celebration

On October 20th we will celebrate the club's 10th anniversary at Buffalo Trace's Clubhouse. The day will start with a drive and once we arrive we will have a private tour of the distillery, a tasting in the gallery, and dinner in their club house. Buffalo Trace is a cool place. Check out the distillery here:

www.buffalotracedistillery.com

Hope to see you at an event soon.

Drive it,
Ed

Editor's Note

We are in mid stride after several great Porsche car events this past month. The good news is we have much more to come. Just around the corner we have our fall charity drive and our much anticipated 10th anniversary membership social.

I would like to comment on the Keeneland Concours by saying this. We own the Paddock Challenge. We made it our fifth year in a row winning the trophy. The challenge now is to get the other

car clubs involved again next year and make it a real contest!

We also had a few folks make the trip up to Porsche's to Ohio this past month and I am looking forward to a report on that event in next months newsletter. Enjoy the August edition and let's have some more fun this month!

P.S. A big thanks to Ed Steverson for adding the new graphics to my car. I love the new look!



Neil Fisher
Newsletter Editor

BOARD MINUTES



**David
Hafley**
Secretary

BLUEGRASS REGION PCA MINUTES JULY 1ST 2013 MARIKKA'S – LEXINGTON KENTUCKY

Board Members Present:

Ed Steverson, Neil Fisher, David Hafley, Jamie Donaldson, Bob Lovejoy, Tim Neely, Mason Wilson, David Patrick, Mark Doerr, and Brant Nystrom

Members present:

Ken Hold

Meeting convened by President Ed Steverson at 5:41 pm

Minutes of the June Meeting:

Motion made by Ed and seconded by Jamie to approve the minutes of the June meeting, with corrections noted. Approved.

Secretary's Report:

Nothing to report.

Vice President's Report:

No formal report. Mason provided a recap of tech session following Cars and Coffee. It was noted by all that Jamie was selected as winner of the detailing prize. His win was met with good natured ribbing.

Treasurer's Report:

General discussion of logistics associated with getting Bob set as new Treasurer. No action taken.

Track:

Brant reported the track event at Putnam had a good turnout with a mix of

new and older cars. The new Corvette track in Bowling Green, Kentucky is scheduled to open in 2014, discussion continues about PCA BGS participating in an event there. Brant also noted Porsche did well at Lemans, scoring a first and second place in the GT group, and that rumor is that Porsche will be getting re-engaged in endurance racing.

Tech:

No report. Ed asked for suggestions on future tech sessions. David Hafley offered to call Jim and 'offer' his car as candidate for a tech session, perhaps in the area of everyday maintenance. All agreed this was suitable.

Activities Report:

David Patrick reported the following: the annual winery drive will be July 27th; David is discussing a drive to Natural Bridge, date to be determined. Keeneland Concours is coming up, discussion about Paddock Challenge, costs, Hanger Bash and related topics. The new Zone 13 representative, James Jacisin will be at Keeneland. Tim will serve as PCA BGS contact person for Paddock Challenge.

Safety Report:

JW Wilson not present. No report.

Newsletter Report:

Neil reported that members continue to provide articles, but more are always welcome. The July issue of Rumble should be available around July 5th, it will be approximately 40 pages with lots of photographs. When feasible, Neil plans to bring a draft of the monthly newsletter to the Board meeting for comment. Communications should be to Neil Fisher:
rfisher2501@insightbb.com.

Membership Report:

One transfer in: Phil Overall (2002 911).

Historian:

Julie not present. No report.

Old Business:

Ed reported the following: June Cars and Coffee had approximately 45 cars which is an excellent turnout.

Several club members attended the Ault Park event, which was deemed a success.

Cincinnati Maserati hosted the second annual Maserati Mingle in downtown Lexington. The event was well attended.

Discussion of the adequacy of marketing for the annual Keeneland event. Some members felt additional marketing could be beneficial.

Summer Heat is upcoming.

Membership appreciation event will likely take place in September. Buffalo Trace is a potential venue.

A fall charity drive in Eastern Kentucky will be hosted by the Womack's.

New Business:

Shirts for 10th year anniversary are still in the works by Ed.

Brant offered to prepare a PowerPoint presentation of a sample of photos he has collected.

Development of a U Tube channel for PCA BGS was discussed.

Adjourn:

Motion and second to adjourn at 6:48 pm. Approved.

Paul's Foreign Auto would like to announce the addition of Shawn Leonard to our staff. Shawn is widely recognized as one of the premier Porsche techs in the area and we would like to invite you to come by, check out our shop, and get to know us. Personal service and customer satisfaction are among the main criteria that we have focused on for the last 22 years and we have the latest in computer diagnostic capability.



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Porsche identity



TRACK TIME

BY BRANT D. NYSTROM

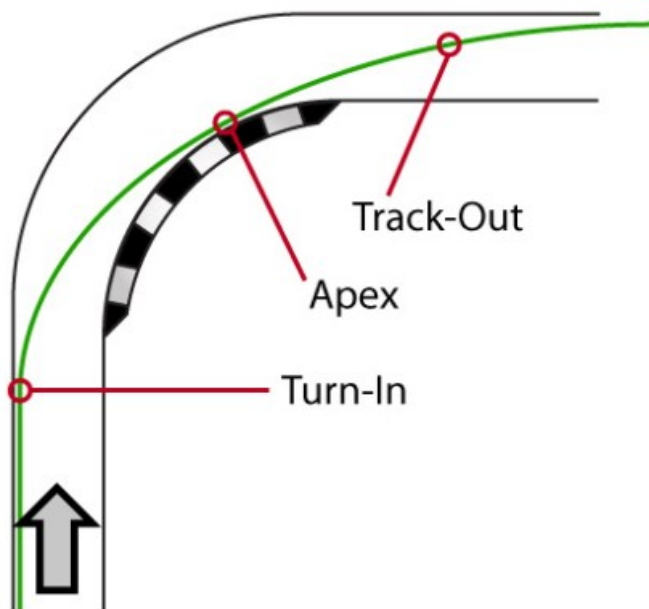
Following last month's track update from Putnam Park, I'd like to talk a little bit more about high performance driving techniques, as well as some of the vocabulary used to describe track driving.

In its simplest form, driving a road course is comprised of a number of drag races set between each of the turns. While this is a vast oversimplification, it helps to drive a few points home. First, as one enters a straightaway, consider it a drag race. In other words, you should shoot for the straightest line possible from the exit of one turn to the entry point or turn-in point of the next turn. Additionally, the driver should proceed under full-throttle until braking is required to effectively execute the subsequent turn. Seems obvious? Well it is amazing the number of students that seem to think that drag racing includes coasting or something short of full-throttle, and to be honest, early on that included me. Full-throttle means depressing the accelerator pedal to the floor, all the way until it can move no further. Oftentimes in street driving, we develop a discomfort with full-throttle acceleration. Students frequently ask me if that will "hurt" my car. Porsches in good working order, perform quite well under full throttle. They are tested and tuned to manage full-throttle acceleration for extended periods of time. You will NOT hurt your car by driving under full-throttle, though your fuel economy may suffer a bit.

Well that covers a large portion of most tracks, and you are correct; it's easy and driver skill has little to do with it. In fact, the "drag race" scenario is dominated by your vehicle's power-to-weight ratio, and further impacted by its aerodynamic characteristics. However, when you watch a skilled driver versus a novice, the difference in their performance is immediately obvious. This difference is fully attributable to the techniques used in managing the turns.

The next point to remember is that a great deal of a lap's time and passing opportunities exist on those drag race straights. To get the very most out of them, it is imperative to exit the turn prior to a straight with the greatest exit speed possible.

Lets take a quick look at the anatomy of a turn:



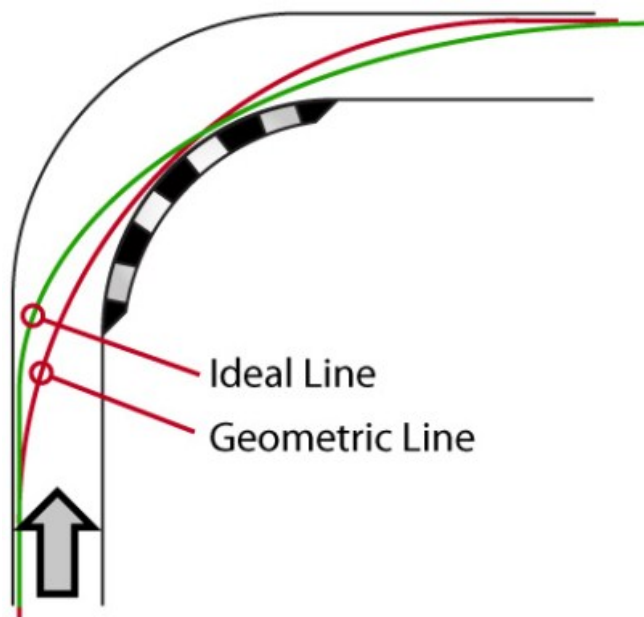
Turns have three important elements, and if you ever take part in a track event, they will be referred to at length. The first of these elements is the **Turn-In** point, or the point at which you first turn the steering wheel following a straight. The second is the turn's **Apex**, or the point where the car passes closest to the inside of the turn. Finally, we refer to the exit of the turn as **Track-Out**. Track-out is much less of a point than it is the required unwinding of the wheel to proceed down the next straight.



TRACK TIME

BY BRANT D. NYSTROM

For any given turn, there is a **Geometric Line**. The geometric line represents a constant arc through the turn. This line is the fastest line through the corner given a constant velocity. There is also an **Ideal Line**. The ideal line is the line through the turn that produces the fastest lap time. It is possible for the geometric line to also be the ideal line (typically in high speed sweeping turns with long straights leading into and out them), but usually this is not the case.



Generally, the ideal line or oftentimes simply called “the line”, looks like the diagram above where the apex is located further through the turn than the geometric line. We refer to this as a late apex. Why is this the line that produces the fastest lap times? Referring back to the beginning of this article and the discussion about drag racing, the late apex allows for a straighter and faster turn exit (or track-out). This quicker turn exit results in a faster drag race down the next straight. Well, doesn't a slower turn entrance offset the faster turn exit? In many cases, yes it does. But, the fast exit will always trump a quick entry due to its ongoing impact on the next straight. Additionally, it is important to note that the absolute radius of a turn has a huge impact on the speed at which it can be maneuvered. Because of this, it is important for the driver to approach a turn from as wide an entry point as possible and to exit using the full track width. Many new drivers (including me at the beginning of my driving experience) begin to pinch turns and not use the full track width as they get faster and more nervous about their increasing speeds. Sadly, this only makes navigating the turn more difficult and can derail further progress. At this point in my career, I believe in using the full track to such an extent as I have inadvertently run off track at the entry to a turn and routinely apex with two wheels in the dirt inside the turn.

In racing and high performance track driving, the goal is to squeeze the fastest lap time out of your equipment every lap given endlessly changing operating conditions. This is accomplished by maximizing each and every turn on the track. Oftentimes, just as we may sacrifice entry speed for fast exit speed, one turn may be sacrificed for the benefit of another. All to run the fastest lap possible!

Now we have a target identified for optimizing lap times, the next step is to assess all the aspects of the car and driving technique. Next month, we will talk about tires, slip angle, oversteer, understeer, as well as driving techniques that all impact our ability to drive at the limit.

If you have interest in joining us at any upcoming event, or would like more information on PCA DE events and what is required to join-in, please feel free to contact me: brantdnystrom@gmail.com Brant

MEMBERSHIP NEWS



**Tim
McNeely**
*Membership
Chair*

188 members!

Two new members this past month!!! Please join me in welcoming:

Frank & Susan Entwisle
of Lexington
2006 Cayman S

James Kalb
of Lexington
2002 Boxster S

We also had one member transfer in from the Ohio Valley Region.

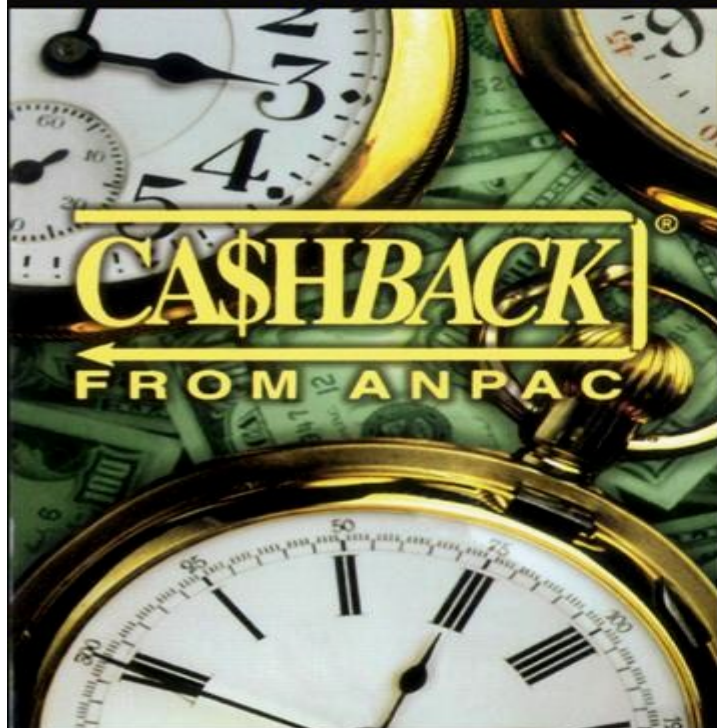
Welcome to Dave Haase of Verona, KY with a 2011 Boxster.

Our membership is at 112 Regular Members and 76 Family & Affiliate Members, making our total membership 188.


Also, please recognize the following Member Anniversary dates:

Dan Hendrix	1995
Thomas McKinney	2002
Mechealle Hanks	2003
Mike McNalley	2007
Bob Lovejoy	2008
Bob Lysack	2008
Gary Whitaker	2008
Tim Averion-Mahloch	2010
Jake Gilmore	2010
Gary Bailey	2011
Scott Congleton	2011
Leonard Ledford	2011
Marc Taylor	2011
Action Jackson	2012
Masten Childers	2012

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CALENDAR OF EVENTS



David Patrick
*Activities
Chair*

Contact David with
Porsche-related event
news: ptrck-
dvd@yahoo.com

Aug 5th Board meeting, 5:30 -
6:30 pm, Marikka's

Aug 10th Cars & Coffee
(Louisville) 5700 Captain's Quar-
ters Road, Prospect, KY 40059
9 - 11 am

Aug 24th Drive to Natural Bridge
and Membership Social, Meet At
Cosi in Hamburg at 9 am to drive
up

Sep 2nd Board Meeting, 5:30 -
6:30 pm, Marikka's

Sep 7th Cars & Coffee, 9 - 11 am,
Clarion Hotel, Newtown Pike

Sep 28th Fall Charity drive and
Membership Social, meet at Bob
Evans on Winchester Rd at 9 am to
depart.

Oct 5th Cars & Coffee, 9 - 11 am,
Clarion Hotel

Oct 6th Rallye Porsche Marie-
mont. There will be a caravan up to
the event, details coming soon. For
more information go to
www.ovrrpm.com

Oct 20th Membership Apprecia-
tion drive and social at Buffalo
Trace distillery. This is our 10th
anniversary celebration. It will be
catered, there will be a tour of the
distillery, prizes, a slide show, and
much more. Stay tuned for more
details in next month's Rumble.



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Cars & Coffee July 6th



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Rain was in the forecast for this year's Keeneland Concours d'Elegance. But, the weather god's smiled on us and offered up a bright sunny day to enjoy the cars on the beautiful Keeneland lawns. Mustang was the featured Marque this year and they offered us almost 300 pony cars to look at in the paddock. Tim McNeely did a great job as usual heading up the Paddock Challenge to rake in donations from the P-Cars attending this year's event. We had over 80 Porsche's show up in the Paddock this year for another strong turnout. At the end of the day we collected \$3012.00 and once again captured the trophy winning the Paddock Challenge. The Mustangs placed second with over \$800. I'm not sure where the Corvettes came in but they used to be our biggest competition. I would like to see a little more of a challenge coming from the other car clubs. We were also treated with a display of helicopters at this year's event. All in all it was a great day to get out and enjoy looking at some fine machinery and support a great cause.



















Winery drive and Membership Social at Elk Creek Vineyards July 27th

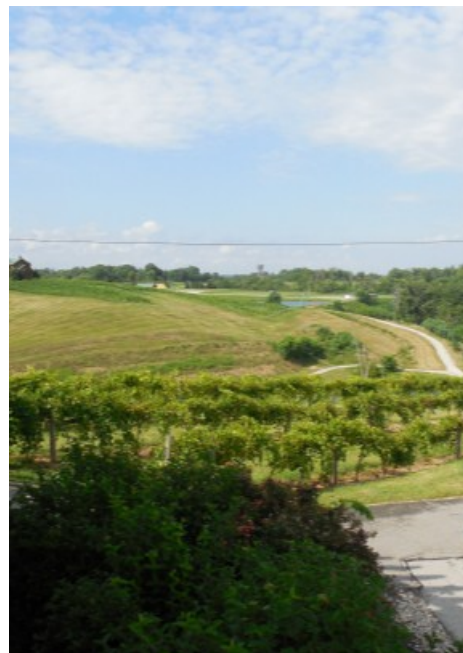
Our annual winery drive takes us to Elk Creek Vineyards in Owenton. Tim McNeely leads the drive once again to the beautiful vineyards and winery. If you like taking a drive on a twisty road in your Porsche this is the drive for you! Most of the trip was sunny and dry but we ran into a little light rain on the last 2 – 3 miles of the drive. By the time we arrived at the vineyard the rain had passed through and our visit was perfect!

In attendance for the drive were: Jamie Donaldson, Ken & Adel Hold, Scotty & Vicki Rowe, Tim & Trish McNeely, Ed Steverson, Patrick Meyer, Gary Hackney & Beth McAllister and Neil & Michelle Fisher.





Winery drive and Membership Social at Elk Creek Vineyards July 27th



TECHNICAL

Taking a closer look

Puzzle At The Pump by: David Jones

Back in the days when our 356s were new, gasoline blending was relatively simple. Virtually the only difference between regular gas and high octane gas was the octane number, which was controlled by the amount of tetra ethyl lead introduced during the blending operation. There were fewer controls on the actual composition of the gasoline, resulting in a huge variation in the quality of the gas sold at different branded gas stations. It was, in many cases, pretty bad fuel that was made useable by adding that magic elixir. You really could tell the difference in performance between brands, and if it did not have the Ethyl Corp logo on the pump (Ethyl Corporation had a virtual monopoly on lead), it was almost certain that the engine would knock and run rough because it would be a low octane blend. The only time that a lot of attention was paid to gasoline quality was in racing formulations and most major oil companies had a representative on hand to advise the race teams at major racing events.

A little history

Leaded gasoline was first used in the 1920s. By 1976 the use of leaded gasoline began to decline due to new Federal guidelines on the use of lead. In 1982 the EPA lowered the limit on the amount of lead allowed in gasoline, followed by another reduction in 1986 as part of a plan to completely phase out the use of lead. In the years since, leaded gasoline use has declined by more than ninety percent. Why? Tetraethyl lead is a very toxic substance and has always been known to have a detrimental effect on people exposed to relatively high concentrations. As a consequence, it is very hazardous to use and manufacture so there was a huge environmental benefit in switching to unleaded gasoline. The problem was trying to replace the octane through other means. The formulation of gasoline had to change considerably



when the phase-out of leaded gasoline began. Refiners had to find a way to increase the octane level of gasoline without a significant increase in the cost of production; adding lead had been in the range of 8 cents a gallon. The downside of having to make unleaded gas was that production of more higher-octane products was required to make up for the simple octane-enhancing effect of adding lead. This means that every blend of gas now has varying proportions of more and different refinery product streams in the final gasoline mix. These combinations also vary from place to place in the country depending on state regulations and refinery processing capabilities. The continually shifting costs of crude oil, coupled with seasonal requirements for different fuels, means that refiners are constantly changing the gasoline recipe to optimize their operations and squeeze the most money out of every barrel of oil. In effect, the cheapest components that can be used to formulate the octane being blended at any particular time are the ones that will be used. Each of the components used has different octane number and each has different characteristics.

Modern fuel and your 356

Two considerations in the composition of the final blend will particularly affect our 356 engines. First is the specific gravity (SG): the density of a liquid, or its weight per a given volume. Because we are still using that quaint antique mechanism, the carburetor, our engines may be affected as soon as we fill up and drive away from the pumps. Specific gravity becomes a moving target; it varies with the change in gasoline from summer to winter and can change with different manufacturers, regardless of octane rating. This has the effect of changing the fuel/air ratio of the mixture being fed in to the combustion chamber. Also, the level of the fuel in the float chamber changes because with a lower SG, a given weight of fuel may actually have more volume and the float will close the needle valve later and result in a higher fuel level which could lead to flooding and poor running. The SG number of gasoline (as a reference point, water is 1.0) can vary from a very light blend at 0.69 to a heavy blend at 0.8. Most of the time it will lie in the 0.72 to 0.76 range which is why I have always set up my float level with stoddard solvent (mineral spirits) which does not vary much in

TECHNICAL

Taking a closer look

Puzzle At The Pump by: David Jones

SG and is usually around 0.76. Winter gas tends to be the lightest because extra butane gets blended in to raise the vapor pressure (measured as RVP - Reid Vapor Pressure) and the volatility for ease of winter starting. As much as 19% butane is possible depending on the vapor pressure of other components. Second, affecting our carburetors are the "oxygenates" that now get blended in. These are the components that are intended to make the fuel burn more cleanly. Unfortunately, they also lower the BTU content of the fuel because in and of themselves they add nothing to the fuel and in fact dilute it. Oxygenates contain 'used' oxygen, so cars using oxygenated fuels burn MORE fuel (because there is less 'fuel' in the fuel) and this increases pollution anyway. And there is a second effect here, too - carburetor cars cannot adjust the fuel/air mixture 'on the run' like computer equipped fuel injected cars can, so they run lean when run on oxygenated fuels. This is because carburetors meter out a volume of fuel into the intake air; they have no regard for the chemical content of the fuel. As noted above, oxygenated fuels have less "fuel" in the fuel and the resulting lean burning creates more heat in the cylinders. This 'excess' heat then raises the octane number needed, and it becomes a vicious circle.

Carburetor Compensating

If you can avoid using oxygenated fuels, do so. If you have to use oxygenated fuels, you may improve the car's performance by using a slightly larger main jet in the carburetor. Doing this brings the mixture back closer to the correct setting, which helps reduce the extra unwanted heat in the engine, and reduces the likelihood you'll need a higher than normal octane gasoline to compensate. If your engine is due for a rebuild, and you have to use oxygenat-

ed fuels, consider using a slightly lower compression ratio. A 10% ethanol blend (E10) needs a main jet 2 sizes larger than a straight hydrocarbon fuel (for example, from a 115 to a 120; or 125 to a 130), to get the mixture back in to balance (stoichiometry). A 20% ethanol blend needs a main jet 4 sizes larger, and will probably need a larger idle jet, too. Fuel consumption WILL increase with these changes.

Octane rating

This brings us to the subject of octane which can get a little confusing because of the differing uses of the various octane measurements and terms. For Porsche 356 owners there are four octane terms which should be understood. The first is the one you see on the pump in the US when you fill up. There is a small yellow sticker which will state that the pump octane is the sum of R+M /2. This number is the AKI or Anti Knock Index. We'll also refer to it as the "pump rating." The number is derived from the "R" or "RON" which is the Research Octane Number, and the "MON" which is the Motor Octane Number. A quick explanation of the two terms will help understand the difference. The RON or Research Octane Number equates to driving a car under mild or nominal operating conditions. This would mean reasonable acceleration and changes in elevation. This would be the higher number. The MON or Motor Octane Number equates more to what the engine would see as the knock characteristic under more severe conditions - namely full throttle acceleration at higher speeds or driving up a steep hill under full throttle conditions attempting to maintain speed. This would be the lower octane number. A typical AKI will be derived from a RON of 98 and a MON of 88 giving an AKI of 93. Go look at your drivers' manual for the 356 (if you have one) and you will find it specifies a fuel with a "ROZ" rating

which is a non-US rating. This rating is the equivalent of the RON rating (which number you are not privy to because it is constantly changing). For instance, in one tank of gas the RON could be 92 with MON of 82 and the next tank could have a RON of 90 and a MON of 84, so if you needed a minimum ROZ of 93 then you missed by 1 number, but the AKI or RDON (Road Octane Number) remained the same. This is just as well because it is really the number you should be using to determine the octane requirement you need. So that you need not worry unnecessarily, a typical variance for RON/ROZ in a 93 octane blend would be 98 to 99; if your manual calls for 96 ROZ, then you are quite safe with 93 pump rating. If it calls for 86 ROZ, then a pump rating of 87 octane is more than adequate for your car.

More effects

There are more parameters of gasoline that will affect how your car starts and how it will restart which have to do with two things, and they are the RVP (Reid Vapor Pressure), which is a measure of the vapor pressure of the gasoline, and the initial boiling point which is closely related to the vapor pressure. In wintertime, the gasoline is blended with a lot of butane so that for easier winter starting the gasoline will more easily vaporize in the carburetor. If it did not then the engine would easily flood and fail to start. Unfortunately, as we run somewhat high cylinder head temperature in our engines, this means that with a hot engine the fuel in the carbs is subjected to the residual heat in the heads which can well be hundreds of degrees above the initial boiling point of the fuel. This can result in as much as 50% of the fuel in the float bowl being boiled off as the car sits cooling down after a run. Typical head temps are around 325 degrees and a typical 50% boiling point of winter gasoline is 250 degrees. Cars with

TECHNICAL

Taking a closer look

Puzzle At The Pump by: David Jones

insulation blocks between the carbs and manifolds are less prone to this problem. Be aware that aviation gasoline has a lower vapor pressure than motor gasoline because aircraft carburetors have heaters to assist in vaporizing the gasoline. If you decide you want to run avgas it may be a better choice for summertime than winter. The fact that avgas still has lead in it does not mean your car will start any easier! To get the best out of today's gas you need to know what is in it and know how best to tune your car to cope with it. If you live in areas where RFG (Reformulated Gasoline) is mandated then you could have a problem with leaks caused by components in the gasoline that either dry out seals or make them swell. Either way you end up with leaks. Inspect fuel transfer systems as often as you check tire pressures and oil levels. Modern cars are built with modern materials that have been tested for compatibility with modern fuels. The youngest 356 is now approaching 40 years old and those materials were never tested or designed for some of the modern fuel components so it would not be surprising to get the occasional leak or component failure. Try to avoid using fuel with ethanol or other RFG fuels and use the lowest octane fuel that the car will run happily on.

**Source - "Cleaner Burning Gasoline" California EPA.*

Gasoline today is blended to a very specific standard although that standard changes with season and place. Here's an example of data from instantaneous readings from the on-line blender at a refinery.

Addendum: Gas and storage

Octane does not necessarily decrease if gas sits. It will depend on the components used in the gasoline mix. Unfortunately, the lighter component fractions are the ones which vaporize easily



ly and they are the ones that provide easy ignition for starting. If it is winter gas in a cold climate then there is more butane dissolved in the gasoline to assist in winter starting. The octane of butane is 93 so if you have 10% butane in the mix and lose it all then if the sum of the octane of the rest of the components is less than the whole then you will have lowered the octane. By inference this is going to hold true more for 87 octane than premium. If you are using summer grade gas then the decrease is much less because there is less butane. But you may still have the problem of poor starting characteristics because of the lower vapor pressure; the hotter it gets the more of the lighter fractions will have evaporated. Butane has a boiling point of 31 degrees F so if left at that

temperature or long enough then it will all boil away. Luckily, once it is dissolved in gasoline, it does not boil easily so it stays in solution a lot longer. That is until it is left to sit in a hot carburetor attached to a hot cylinder head on a hot day when it all boils away in a few minutes. Keep your car in the shade and it will start easier and you will get better gas mileage.

David Jones is a process analyzer engineer, responsible for the on-line process analyzers which measure all the liquids and gasses that run through the refinery. He has been in the industry for 30 years .

GC 1 IBP (DEG F):	99.7	GC 2 IBP (DEG F):	99.9
GC 1 10% (DEG F):	118.5	GC 2 10% (DEG F):	118.3
GC 1 50% (DEG F):	191.3	GC 2 50% (DEG F):	191.0
GC 1 90% (DEG F):	344.7	GC 2 90% (DEG F):	344.7
GC 1 EP (DEG F):	435.4	GC 2 EP (DEG F):	436.6
GC 1 RVP (PSIA):	8.87	GC 2 RVP (PSIA):	9.05
OCTANE			
RON (AX93806)	91.4		
MON (AX93807)	82.5		
RDON (AX93808)	86.9		



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