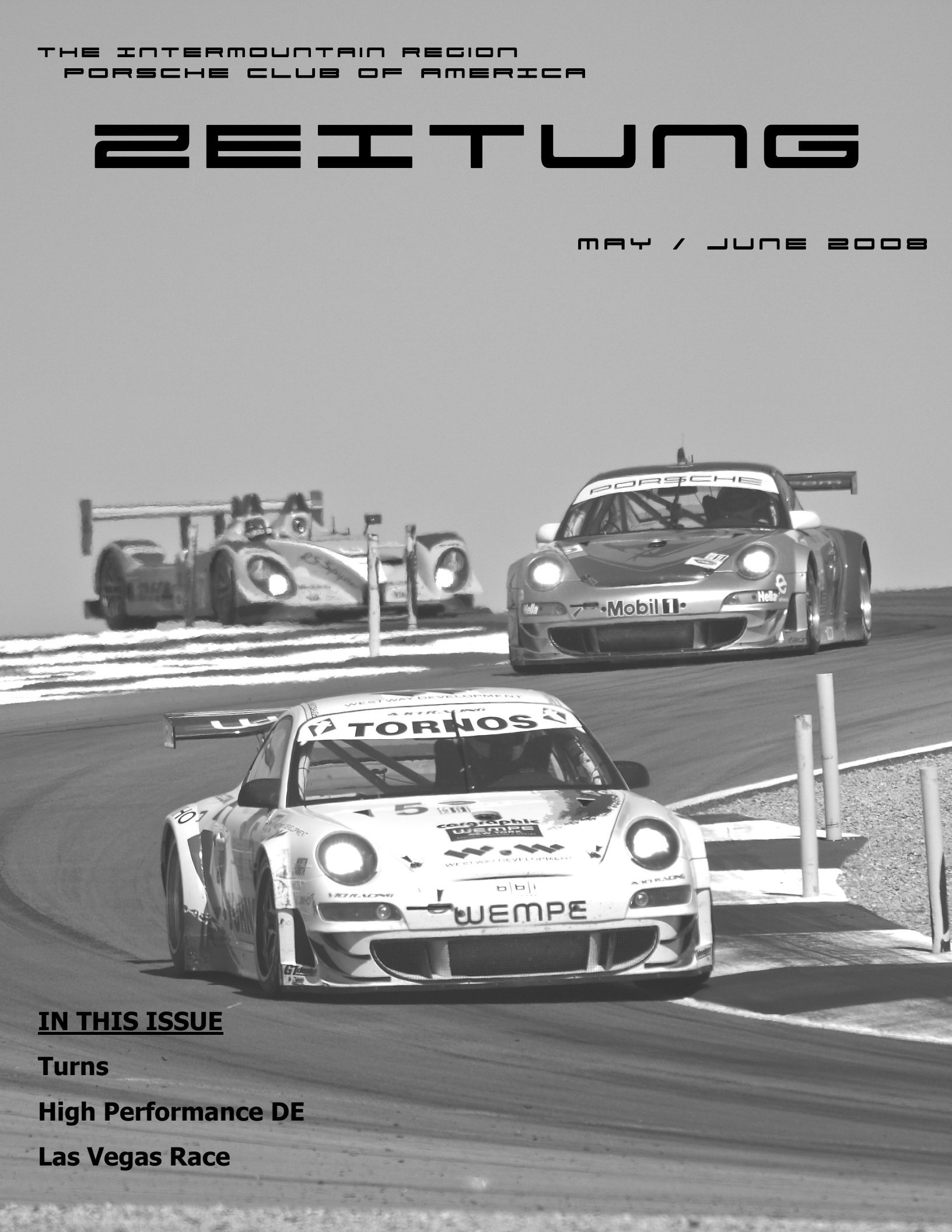
THE INTERMOUNTAIN REGION
PORSCHE CLUB OF AMERICA

ZEITUNG

MAY / JUNE 2008



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Turns

High Performance DE

Las Vegas Race

THE DRIVERS SEAT

Our club has gotten off to a great 2008. We have had quite a few events already, with a lot more to come! Several of the activities have had low attendance. However, everybody who has participated in an event has had great things to say. That tells me that we need to get the word out. If we can let our members (you) understand what your club offers, and how much fun it can be, I'm sure we can get more participation.

We all have busy lives. Our schedules don't allow us to do everything we'd like. Often, a new activity gets low priority. However, based on feedback I'm getting, you may want to put in a little effort to get to that activity you've been thinking about.

If you do make it out to an event, let me hear about it-even if it's just a quick email note or photo. If you can't do that, at least take the time to thank the people that organized the event. Let them know what you thought!

As of last check, there are only 164 Google Group members—ten more than last issue. This is the best way to stay informed, and get your questions answered. Please consider joining if you haven't yet. Check the last issue for details (available online).

A special thanks to everyone who has provided input for this issue.

Stu Hamilton
Newsletter Editor

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INTERMOUNTAIN REGION

ZEITUNG

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COVER PHOTO: ALMS RACE AT MMSP BY ERIC SCHRAMM

EDITORIAL POLICY

The purpose of the Zeitung is to provide the paid membership with information, articles of interest, and editorials. Any member wishing to submit an article, editorial or rebuttal, is welcome to do so, keeping in mind that all articles will be edited and or refused by the Zeitung editor or an IRPCA officer(s), if it's content is vulgar, or of questionable material. Readers must keep in mind that articles submitted by member's are opinion's only relating to the integrity of the individual not the club as a whole!

President's Messasge

We kicked off the year with an awesome opening social event at Lamb's Grill. In case you missed it, our opening social has become a well attended fun dinner party tradition. There, we stated the Autocross, DE and social events we have planned for the year.

71 of you attended our 1st High Performance Drivers Education (DE) at Miller Motorsports Park. We had a great time and hope to repeat another successful DE on June 21st. I hope you can join us. Our volunteer work force continues to impress me ever so much. We really couldn't run any of the Club activities we enjoy so much without the help of all of those who so are always so willing to help. My hat is off to you for your support.

If you just joined our region and are reading this magazine for the first time, please come out to our activities. We have something for everyone. Including Autocross, DE, Social events and tours.

Sincerely,

Otto Silva
IRPCA President

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Here are some Myths and Facts about Gasoline

Myth: **Too much octane will burn up my engine**

Fact: **The only time your engine is aware of octane is when it doesn't have enough octane.**

Myth: **Street gasoline with oxygenates is junk**

Fact: **Street gasoline of today, especially in California, is the best performance gasolines next to racing gasoline.**

Myth: **I buy premium grade gasoline because it has more and better additives to keep my injectors and valves clean.**

Fact: **All gasoline sold in the U.S. are required by law to contain an additive that will keep injectors and valves clean.**

Myth: **The octane requirement for my engine is always the same.**

Fact: **Operating conditions like air temperature, barometric pressure, humidity, and coolant temperature have an impact on engine octane requirements.**

We would like to hear from you and help you with any of your needs and specialty requirements. Give me a call any time.

Chuck Beaman
General Manger
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Kellerstrass Oil
801-392-9516 Ext 16
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Drivers' Education

By Ed Hamilton

Not Your High School's Drivers Education!

I'm getting notices about my upcoming high school reunion. I went to high school in Hawaii and haven't made the trips to the reunions up until now. But this year will be 25 years. I might try to make this one.

There's a lot of good memories that I can still recall from my high school years; first jobs, first girlfriends, climbing up Diamond Head in the middle of the night to watch the sun rise, sports and teamwork, a crude introduction to everything I'd have to learn again at college and meeting some of the best friends I've even known. However, I can't recall one specific thing about Driver's Education.

I can imagine how it was supposed to work; ten or more hours of classroom instruction, forty-five minutes watching "Death on the Highway" and then a few hours spread out over several weeks sitting in a car with three of my classmates and a teacher while we laughed at each other's driving. There was no concept of "defensive driving" back then; no technology to aid in driving like backup cameras or GPS – although having a car with an 8-track player made me popular.

Thinking back, the only concept of driving I may have learned in high school was the steps to parallel parking and if you've ever been to Hawaii you know they don't have much parallel parking and they don't do it well. Based on that one piece of evidence and the fact that my teacher was also my Phys Ed teacher suggests he may have been woefully unprepared to teach Drivers Education.

However, through sports I learned the benefits of teamwork and the need for a coach. The coaches job, simply enough, was to look at all the pieces of the team and make sure they would work together. You won't win a football game if you ignore your kicking game or a baseball game if you don't have the fundamentals down. I've thought over the years that we should call "teachers" our "coaches". Because if we don't have all the pieces working right we're going to fail; or at least spend an inordinate amount of time teaching ourselves the basics.

So, after acquiring my first Porsche (1982, 911SC) many years later in life I approached my first day of my very first PCA Driver's Education day with the trepidation and wariness of a high school Junior. And to my surprise, when I got to the track I was

assigned to an instructor who turned out to be more like a coach. The difference is that the instructor looks at all the aspects of the driver, the road, and the car while giving advice. It was an informative, tiring and thoroughly enjoyable day. That was ten years ago. Recently, I got to see it happen again.

On the first track day of this year at Miller Motorsports Park I brought out a friend and co-worker to see what days at the track were all about. He'd seen me take weekends off for the past several years, making the trip from Seattle to spend a few hours on the track. But, track driving is one of those experiences that isn't worth describing. The intensity, the required focus not only on yourself but the car and the environment and the thrill that culminates with pushing yourself and your car to the limit can't be described. The only way to comprehend it was to get in the car. And after trying to describe the experience to Brad I decided to invite him along.

Track Day – April 26, 2008

This was Brad's first trip to a Driver's Education event. This was also going to be Brad's second time in a Porsche - if you count a lazy morning the day before driving the Canyons as his first time. Someone more familiar with driving a pick-up truck was hours away from his first experience at high performance driving.

First up is the Driver's Meeting. Sounds innocent enough but this is also the beginning of a long day of learning new facts, concepts and ideas. And it starts with the team work required by all the drivers to get around the track safely. It is explained how to line up the cars to get on the track, how to leave the track safely. There is also an introduction to the flags you will see waving from the many safety workers on the course. For those watch-it-on-tv race fans I'll warn you now there are more flags than a white one, yellow one, green one or a Checkered one.

Then you meet your coach. Every new driver on the track is assigned an Instructor. Based on your comfort level, that Instructor will ride along with you for most of your first day. As the day is divided into run groups (to allow everyone access to the track without creating a traffic jam), you may wait a bit - but your time on the track will come. Take that time looking at the track from the grandstands or from above the pit area.

If you ask a driver with experience what the track is like you'll immediately understand why Miller Motorsport Park (MMP) is a well liked facility. For along with some tricky turns, it also has lots of run-off areas (dirt and open space to drive through if you inadvertently leave the track). Seeing it from above the ground level you realize it is almost impossible to hit a barricade or wall as they are set back from the track. The track is also wide giving lots of room for mistakes as well as for safe passing.

Driving the MMP West track is taking on 2.2 miles and 10 turns, so let your driving instructor drive the first lap or two. You'll be glad you did. There is a lot happening all at once on the track and it's best to just be watching the first couple trips. This may also be the first time you've ever seen your Porsche driven the way it was built to be driven. Even so, you'll be going just as fast behind the wheel by the end of the day.

Brad came back from his first session on the track with an immense grin on his face but also with lots of questions. He'd done what is suggested for the first few sessions on the track; he'd picked a couple turns that he wanted to improve his driving through and was focusing on those. He was peppering me and anyone else around with questions about the braking zone, the appropriate line to take into the turn, where the true apex of the turn was and on tips for accelerating to maximize his use of the straightaways. He was learning the concepts quickly.

Two sessions later Brad drove off the track while coming out of a turn. It was something he'd worried about all day. Prior to arriving at the track he had been concerned about his ability to handle the car and his responsibility for the safety of a borrowed car. The last thing he wanted to do was crash it. This is one of those aspects of track days that has to be experienced rather than told. As it turns out leaving the track is simply missing the understanding of the limits of your car, yourself and the environment on the aggressive side rather than being too conservative. There also is no "crash" involved to overdriving the car as leaving the track is about equivalent to driving over a dirt driveway.

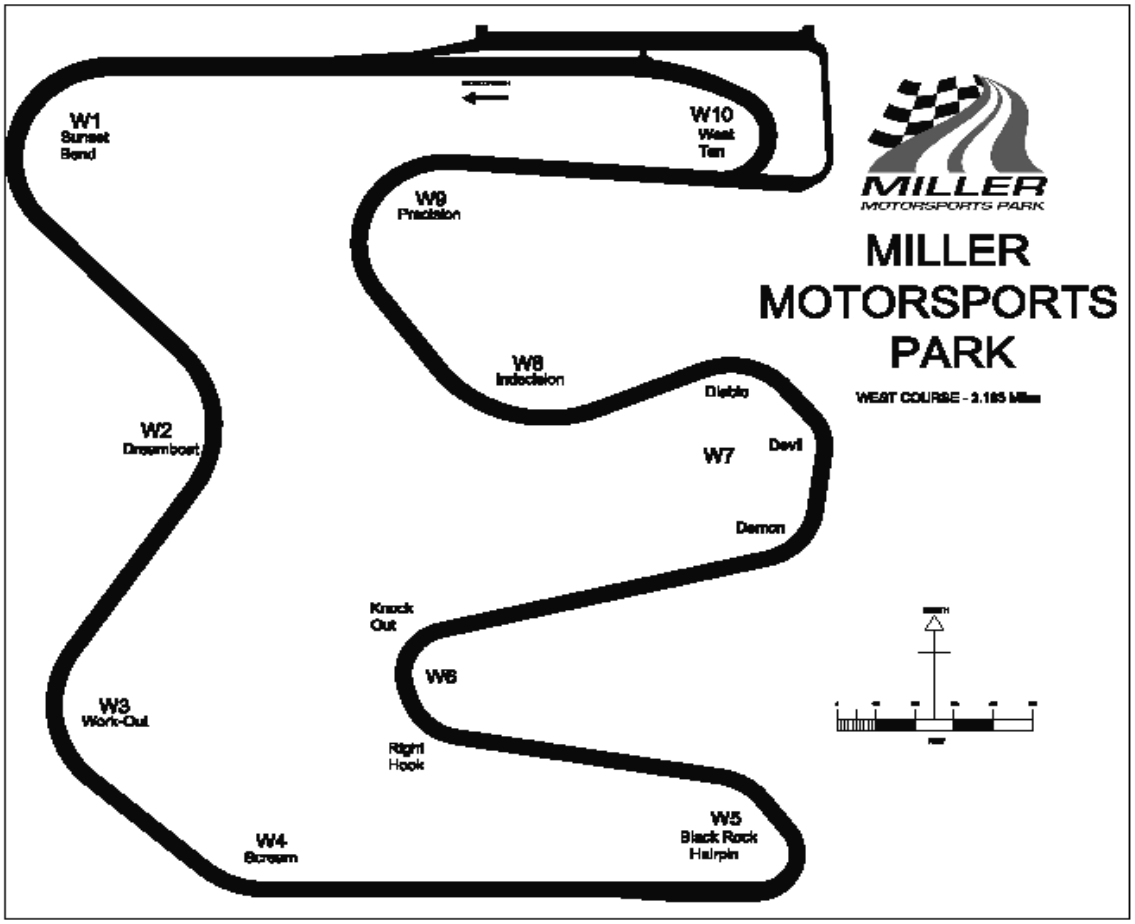
When Brad came back to the pit area he got some slaps on the helmet and some friendly ribbing from the rest of us. When he got out of the car and the laughter had faded I asked him what happened.

"Oh, that's easy. I was carrying too much speed into the turn . I should have been on the brakes more aggresively to get set up for turning in. When I didn't, I carried too much speed into the turn and couldn't turn back across the inside of the turn to hit the apex. I carried all that momentum through the outer part of the turn and the car slid off line and eventually off of the track." He looked at me and nodded. He understood completely.

Now, that's what I call Driver's Education!

Intermountain Region
High Performance Drivers' Education
Miller Motorsport Park
Saturday, June 21, 2008 and Sunday, July 20, 2008

Space is often limited. Sign up early to reserve your spot.
Go to the website for more information and registration forms.
http://Int.PCA.org//



MAY 18 AUTOCROSS

PHOTOS BY ED & KATHIE CHAHANOVICH

Las Vegas Race

By Otto Silva

A few weeks ago I had the opportunity to attend the Las Vegas Region race. It was my first out-of-town Club race and I must admit I was a bit apprehensive about driving 397 miles pulling my trailer. Ed Mineau and Tim Martin headed to Vegas earlier in the day and were kind enough to save Bob Jones, Derek Ollivier, Aaron Ollivier and I a place in the paddock.

For those who are not familiar with "paddock territory", layout and parking is everything. You must park your trailer and towing vehicle in the most strategic yet spacious way. You also need to take advantage of the setting sun, estimate where the shadows will be, and finding the optimal place to exit and enter your race car when you are not driving. Boy, the things I learn by hanging around such seasoned racers. It seems that every time I go to the track, I learn a new trick or discover another useful tool to make my track life easier.

At one point I asked Ed (referring to his low stool on wheels), "Wait a minute, I got into this hobby to save money, now you are telling me I need to buy one those? Don't you know that I got into this hobby to save money?" Less then a minute later, Ed came and asked me to expound on this "saving-money-crazy-talk". I then proceeded to tell him that according to my wife, getting a race car was a saving money ordeal. It is her belief that racers spend tons of time, preparing their cars for the track, changing oil, swapping tires, bleeding brakes, running to the store to buy supplies, loading and unloading race cars from trailers and last but not least driving the cars to and from the track. Therefore, staying away from vices that actually cost REAL money in the form of heavy drinking, carousing, Jazz playoff tickets, huntin', (enter your own idea of expensive vices here). Being happily married for 18 years, I know better than to argue with my wifes logic.
So I dutifully, follow the example of my fellow racers and spend the majority of my time tinkering in the garage or earning money that I can spend on 9 heat cycle tires. Speaking of tires, my wife often asks why her SUV doesn't go thru tires as fast as my two Porsches? I am just as perplexed, but needless to say my best friends seem to work at a tire store near my house.

As a matter of fact two days before the Las Vegas race, I had my wife take one of my wheels to the local tire store and to my wife's amazement not only did the workers recognize a Porsche Fuch, they correctly guessed that it belonged to me. My wife was blown away, especially when they new every detail of what I was doing that weekend...unlike my two kids.

Meanwhile, back to Vegas. The folks in Vegas put together an amazing event. They had a ton of volunteers (80 I think). They were friendly, organized and happy to be standing under the bright sun. The track was very challenging to the point that I was completely lost for the first few laps. I had never experienced such tight turns and amazing straight aways followed by more turns. The 42 race cars that showed up had an awesome time. Derek and Aaron had a blast in the DE as well.
Derek was stinking fast in '06 Cayman, that he got moved to a faster group. As always, the Club race community was filled with guys and gals that would do anything for you. We really had a fantastic and safe time. The food was delicious, the private tour of the Shelby factory was a once in a lifetime experience. It is worth mentioning that at the awards night all four Utah racers were mentioned by name.
It was nice to sit by the cars in the evenings and hear stories of how IRPCA used to host a Club Race in Las Vegas and how fortunate we are to have a world renowned track in our backyard now. I encourage all of us to support our sister regions and attend their events. Out of town guest are always welcomed.

Otto Silva
Rookie Racer

THE SCIENCE OF TURNING

BY STU HAMILTON

Have you ever thought about how your car turns? There are a lot of things that happen to get your car to go around a corner. First, you turn the steering wheel. The steering wheel operates a linkage down to the steering rack. The "rack and pinion" rack changes that turning action into a left-right motion. Linkages to the rear of the front wheels actually turn the wheels.

So, what happens next? Anyone remember your high school physics class? Sir Isaac Newton said that, "an object in motion will remain in motion unless disturbed by an outside force…". What this means to us is that your car DOESN'T WANT to turn! It's going in a straight line, and wants to keep going straight. Something has to force it to turn. In this case, it is your tires.

As you turn the wheel, your tires are pointed in a different direction than the direction you car is traveling. As they try to go in the new direction, and you car tries to go straight, a tug-of-war develops. If you are driving slowly, the tires win, and the front of your car is pulled in a new direction. The harder you turn the wheel, the bigger the "tug". Also, the faster you are going, the more energy (momentum) the car has going straight, and the more it fights back. You can feel it easily as this battle develops. The car leans over, your cell phone slides off the seat, and your soda spills. As the tug-of-war gets more intense, it becomes obvious. Your tires squeal, and you may even notice that the steering isn't reacting as well. These are signs that your tires are doing everything they can. Your tires are about to lose the tug-of-war; if it gets any worse, your tires will start skidding as your car continues straight.

So far, we have focused on the front wheels. The back wheels are fighting their own battles. As the front of the car changes direction, the back wheels are "turned". It isn't as obvious, because the rear wheels are turned by the car. The wheels are connected to the car, and as the front of the car turns, the rear wheels are pointed in a new direction relative to the direction the rear of the car WANTS to travel.

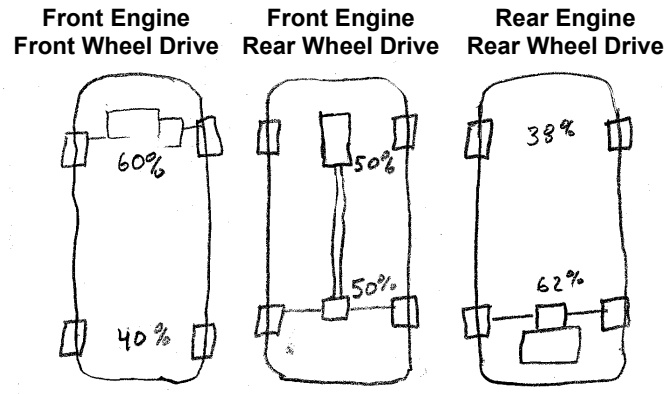
It's important to realize that the two tug-of-war going on at the back of your car is largely independent of the one at the front wheels. Basically, the front wheels are responsible for getting the front of the car (and everything in the front of the car), around the corner. The back of the car is responsible for getting everything in the back around the turn.

There are many variables that go into the ability of your car to turn. However, at the root of it all is your tires. Just like I said last issue when we talked about brakes, everything your car does is done through you tires. The portion of your tires actually touching the road (the "contact patch") is where all the work is being done. Every other variable factor is designed to help the "contact patch" work. As you go around a turn and your car leans, the tire leans as well. This distorts the "contact patch". A stiffer suspension can keep you car from leaning as much. Suspension linkage can be designed to keep the tire more upright as the car leans. The alignment can be adjusted to cause the tires to lean in at the top (called camber) when the car is at rest. This way, as the car leans in in a turn, the outside tires (the ones doing the work) lean out and actually become more upright. This gives you the ideal contact patch. However, it isn't recommended for a street car. Your car will spend most of the time driving straight, and with the tires leaning in, you will wear out the inside of the tires fairly quickly.

The tires themselves obviously play a big part as well. The compound of the rubber is the biggest factor (the softer the rubber, the better it grips, but the quicker it wears out). The tire width is the next biggest factor. The tread pattern also plays a role; ultra-high performance tires have an almost solid outer tread for less distortion. The sidewall is important as well. The less it flexes, the less distortion to the contact patch. Construction stiffness, a shorter sidewall height, and tire pressure all work to limit distortion. (However, increasing tire pressure DECREASES the size of the contact patch, so more pressure isn't necessarily better).

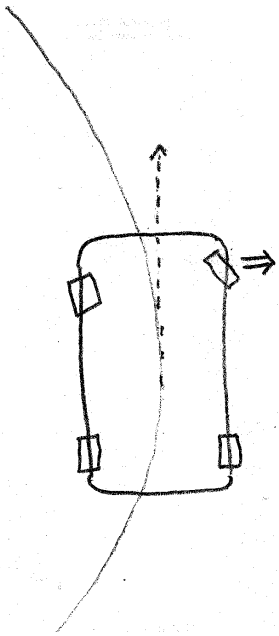
The weight pushing down on the tires greatly affects the ability to turn. Anyone who has tried to slide a piece of furniture away from the wall knows that the more weight is pushing down (the heavier it and its contents are), the harder it is to slide. Don't confuse this with the "sideways" weight that the car is trying to turn. A formula car (Indy cars, F1, etc.) has huge wings that push down on the car, increasing the friction on the tires without changing the weight the tires are asked to turn.

Car design also plays a part in your ability to turn. In addition to the suspension, the way the car is designed is important. Where the engine and transmission are placed greatly affects how much weight each axle is asked to turn. This design factor is the biggest influence in HOW the car behaves during the turn.

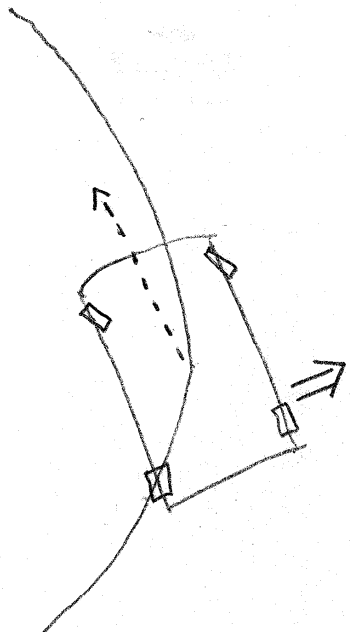


The layout of the engine and transmission has a great affect on the balance of the car, and therefore the way the car handles.

Consider your car going around a turn very fast… both the front and rear axles are carrying their weight around the curve. Go a little faster, and something is going to give. In some cases, the front of the car loses grip. As the front slides out, your steering wheel isn't effective. The car is turning LESS than you have commanded as the front goes straight. This is called UNDERSTEER. In other cases, the back of the car slides first. As the back slides, the nose of the car is rotated toward the inside of the turn, causing more turning than you wanted. This is OVERSTEER. In the ideal case, both axles will have an equal load. Therefore, they will both reach their limit at the same speed. The car will neither understeer nor oversteer, and will be stable at its limit. This is NUETRAL handling.



UNDERSTEER -When the front tires slide, the car tracks outside the intended turn.



OVERSTEER– When the back tires slide, the car tracks inside the intended turn.

Most small cars are front engine, front wheel drive. This design places both the engine and transmission between the front wheels. Therefore, the front wheels are asked to turn the most weight. This means that as the car reaches its cornering limit, the front tires are going to slip first, and the car will understeer.

The Porsche 911 places the engine and transmission in the back, asking the rear wheels to do most of the work. Inherent in this design is the rear wheels losing grip first, resulting in oversteer. Porsche knows this, and has taken steps to counteract the oversteer. First, the rear wheel width has been increased (allowing the rear wheels to reach a higher limit before slipping). In later years, the suspension geometry has been altered to limit oversteer (the LSA rear sub-frame that debuted in the 1995 Carrera) .

A car with the engine in the front, and a transaxle (transmission) in the back (924, 944, 928), will distribute weight more evenly. Placing the engine in the middle (914, Boxster, Cayman) is also a good way to distribute the weight between the axles [The mid-engine design also means a lower moment of inertia, resulting in a more nimble car]. Any of these cars will have neutral handling.

So, why the different designs? The family car places an emphasis on packaging and safety. Interior space can be optimized if the engine and transmission is placed outside of the cabin, without engines or transmissions interfering with space. This means placing the engine either in the front (modern cars), or back (VW Bug). Let's think about handling. A front wheel drive car that is driven too fast will understeer. The natural reaction to a car skidding is to slow down. As we discussed last issue, the result of hitting the brakes is to throw weight forward. More weight pressing down on the front wheels will increase the ability of the wheels to turn, eliminating the understeer. A gentle correction to an understeer is not only intuitive, but will correct the situation. [However, a panicked stab of the brakes may transfer too much weight away from the back wheels, causing an oversteering spin]

The VW bug solved the packaging problem, but handles differently. Ferdinand Porsche worked on the design of the car. After he founded the Porsche company, he carried the design philosophy over to his new company (356, 911, 912). A rear engine car will tend to oversteer. As cornering limits are reached, the back end loses traction. Instinct has to take a back seat in this case. The natural reaction of slowing down will transfer weight away from the sliding wheels, causing them to lose more traction. In an early 911, when the back end starts to slide, you floor the gas pedal! This puts weight on the back wheels, and fixes the oversteer [a newer 911 has to be driven more carefully, as flooring the gas will produce enough power to spin the rear wheels, losing all traction and spinning the car]. So why design a car this way? Remember the discussion on brakes last issue? Since weight is transferred forward during braking, the more weight that starts at the back, the better the rear axle can share the braking. When these designs were laid out 50 years ago, brakes weren't as good, and needed to protected. Sharing the braking took pressure off the front brakes, and helped them last. Also, remember that the best way to brake is in a straight line BEFORE a turn. If you do this, you can accelerate through the turn for better exit speed. If you go on the assumption that you are driving this way, a rear engine car will be very stable as you take the corner with the gas on.

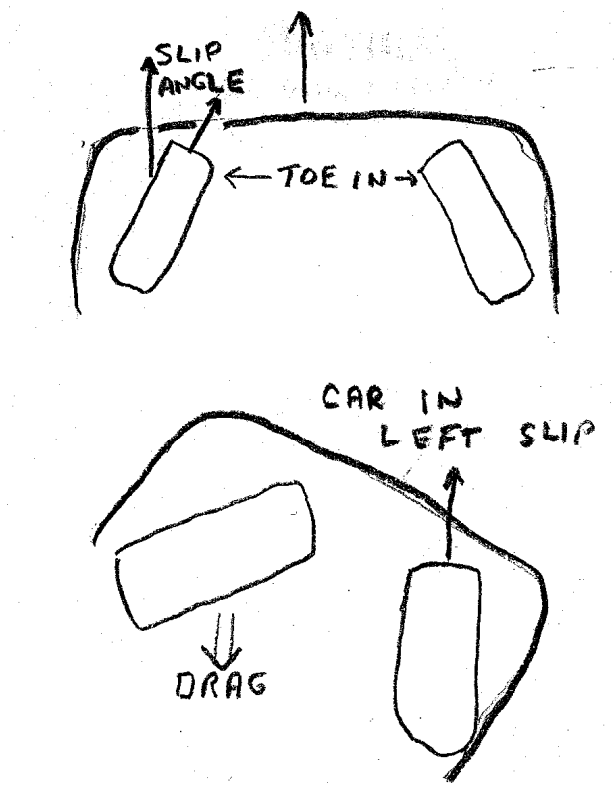
However, the best handling design is one that allows a neutral balance—neither understeering nor oversteering. The necessary design is a compromise in packaging. In a front engine-transaxle layout, the driveshaft passes through the car, and the transmission takes up a lot of space in the lower rear of the car. A mid-engine car loses even more space—to the point of eliminating the possibility of rear seats. However, handling is remarkable. As the car is approaching it's limits, both the front and rear tires are working equally, and both are at or near their capacity. At the limit, the car may display either a minute understeer or oversteer, either corrected easily with small throttle inputs. In fact, the throttle can be used to help steer the car! [a slight understeer and the car gets outside its ideal path… lifting slightly on the gas changes to a slight oversteer, causing the car to rotate and tighten its turn… too tight, and a little more gas corrects back out.]

PIZZA, PORSCHES, AND LSA

BY STU HAMILTON

Anyone who has been on the ski slopes has heard a frantic parent yelling "Pizza" to their young out-of-control skier. As the toddler goes flying by, you'll notice he has a little to much "French Fries" dialed into his skies. The parents are trying to teach the child to put the points of his skis together to help control himself (making a wedge shape like a slice of pizza) instead of holding the skis parallel (French Fries). Apart from learning to ski, this is a good lesson in stability.

This applies to our cars as well. Cars are often aligned with a little bit of "pizza". In automobile jargon, this is called "Toe-in". The wheels are angled slightly inward at the front (less than 1 degree). This helps stability greatly. When tracking straight ahead both wheels offer the a small but equal amount of resistance. However, when tracking slightly off (either on purpose with the steering wheel, or in a slight slip), the wheels work to straighten the car.



This drawing (with exaggerated toe-in) illustrates that a car slipping left will tend to straighten itself due to the toe-in of the tires.

Lets look at an example to see how this works. With the car rolling straight ahead, each tire is actually pointed slightly in, and has a slip angle (it is not moving the direction it is pointed). If the car slips slightly to the left, the left wheel increases its slip angle, while the right actually reduces its slip angle (at least for the first degree of slip). This causes an increase of rolling resistance on the left, and a decrease on the right. Therefore, the left side of the car will have more drag (relative to the right), causing it to slow down—until the right side catches up, and the slip angles are balanced again. At slip angles greater than a degree, the left tire will still have a higher slip angle that the left, and a little more drag. This, in effect, helps the car to travel straight. However, there are other things to consider when aligning a car. Anyone with an engineering degree will tell you that stability and agility (maneuverability) are opposites. The more stable you design a car, the harder it is to turn when you want it to. If you aligned the car with toe-out, it would be more maneuverable, but less stable. In the above scenario, as the car started a left slip, the right wheel would drag more, and the slip would tend to increase. This might be good at an autocross, but would make the car a chore to drive on the freeway (it would follow every road irregularity, gust of wind, or slope in the road)!

The front tires for most Porsches are not driven. Therefore they are always being pulled. Even under acceleration, the tires and wheel assemblies cause drag. Obviously, when the brakes are pressed, the drag increases. Since these wheels are always pulling backward (relative to the car), the toe is easy to set. All suspensions have some small amount of play in them (from the rubber bushings, ball joints, steering racks, etc.). It isn't much, but again we are talking about a fraction of a degree of desired toe-in. Imagine the left front wheel getting pulled backward in the wheel well , and you can understand that any play in the suspension will cause it to pivot back (toe-out). The engineers figure out the amount play the wheels have, and set the toe to allow for it.

The rear tires also have an added complexity. The rear tires also are pulled back under braking. However, as we accelerated, the wheels are pulling the car. In other words, they try to move forward in the car. As they try to go forward, they pivot inward as much as the suspension play will allow. Under acceleration, they try to toe in. Under braking, they try to toe out. If you read the last article on steering, you understand that less stability under braking can be bad - adding less stability to the rear axle will aggravate any oversteer (or cause oversteer in an otherwise neutral car). The engineers traditionally have had two choices. First, they can set enough toe-in so that the play is absorbed as the wheels get pulled back under braking (like they do at the front). The result is a car that has an additional amount of toe under normal driving and acceleration. Not a bad choice for most cars, but it is a compromise in agility. Second, they can set a compromise in toe, and live with the increased instability under braking.

Porsche didn't like either solution. In conjunction with the development of the 928, the engineers at Weissach designed a new rear suspension. They designed a linkage to the rear wheels that, under braking, pull the front of the tires inward. This "Weissach Axle" solved the dilemma. The toe could be set at or close to zero for normal driving—optimizing the agility. Under braking, the rear tires would automatically develop a toe-in for greater stability. It wasn't until two decades later that this was carried in to other models. Through the 80's Porsche made only small changes to the other cars in their line-up. The first major platform redesign came in the form of the 1995 Carrera (993). The engineers were able to incorporate design elements of the Weissach Axle. They designed an aluminum sub-frame that encapsulated the transmission. This frame provided mounting points for the necessary suspension arms (previous 911's used a swing-arm that mounted to the body ahead of the rear wheels. They called this new sub-frame/suspension LSA (Lightweight-Stabile-Agile).

The LSA sub-frame has since been used in the Boxster/Cayman and newer 911 (996/997) designs.
The Weissach Axle/LSA gave the designers a little more freedom. They could allow the suspension to set a fairly high toe-in under heavy braking. This would allow for a very stable car under braking. The car wouldn't be as agile- but since we do our braking in a straight line (we covered this last Zeitung), agility isn't required. The toe-in would come out as the brakes were released, and agility would return. It was an ideal solution. As they say, "Everything has its price." In this case, the price is two-fold. First, the LSA sub-frame is a complicated assembly. It adds significant cost to production. Second, the high toe-in under braking translates to a significant slip angle of the tire, and therefore causes accelerated tire wear. Since it creates a safer, easier-to-drive car, tire wear is an acceptable trade-off (although you may not feel that way when you price a set of rear tires). Now, if we could only get the engineers at Weissach to help out those toddlers with their pizza….

A Carrera 4 (993) suspension. showing the aluminum sub-frame and trailing link assembly that allows the rear tires to toe in under braking.

Stability Control & Handling

Now that we have discussed turning, lets talk about how it relates to the newest cars. Porsche was one of the pioneers of stability control. Their version is called Porsche Stability Management (PSM). So, how does it work? Let's say you take your new 911 into a turn too fast. In traditional 911 fashion, the car starts to oversteer, and the back end starts to slide out. Wheel speed sensors, accelerometers, and yaw sensors tell the computer you have entered oversteer before you even feel it in the seat of your pants. The computer also knows that although you have reached the cornering limit with the rear wheels, the fronts still have traction. It uses this traction to apply slight brake pressure to the outside front wheel only. As the front outside wheel is slowed, the car will want to pivot around that wheel. In other words, the back of the car will pivot to the inside (this can also be thought of as the outside of the car slowing relative to the inside)—counteracting the oversteer. On the other hand, your car may start to understeer (front tires losing grip, and starting to slide). In this case, the computers know your front is sliding, but the back still has traction. The PSM will apply braking to the inside rear tire. This will slow the inside of the car, and cause the car to rotate into the turn, correcting the understeer. The system works amazingly well. However, PSM can only do so much. If the car is driven into a corner so fast that neither axle has traction, physics will win, and the car will slide.
Stability control is helpful on the track, allowing a driver to push the car closer to the limit without concern for a sudden spin or skid. However, the true brilliance of PSM comes in everyday situations. Any of number of scenarios can cause the need for an emergency maneuver. Since we don't practice these maneuvers everyday, it's safe to assume we won't do them perfectly. Jerking the wheel to hard (understeer) or turning and hitting the brakes at the same time (oversteer) are typical panic reactions. PSM does a wonderful job of getting the car to respond correctly.
The system works so well, that other car companies have developed their own versions of stability control. It is now standard, (or optional) on cars from compacts to SUVs. Like other innovations to come out of Europe (airbags, ABS brakes), expect to see stability control become a normal part of the automobile. The safety benefits far outweigh the costs of the systems. However, anyone who remembers the domestic airbags of the 90's knows that not all safety systems are created equally. Porsche still makes one of the best stability systems out there.

Classic and Modern Sports Cars

By Will Crowther

I loved my 993. It was built in 1996. It had power and quickness – 282 HP and 250 lb-ft of torque. In its day it was faster than fast. It was legend.

My normally-aspirated Carrera was air-cooled (OK, and oil-cooled too – twelve quarts of Mobil 1 in its own tank). It was the quintessential 911. And it was beautiful. The Arena Red paint and Cashmere leather seats were made for each other. Men and women both liked the "sort of maroon" or "pinkish thing going on there" luminescent color. A passerby once called it (I believe he meant 993 coupes in general.) "The most beautiful car ever built."

It was fine for short trips, but somewhat uncomfortable for me on longer treks. I was at the limit of size for the cabin, and the standard seats' bolsters were definitely designed for thinner folk. And it was truly Teutonic: though they were available options in 1996, it lacked even the simple nicety of heated seats. That outraged my wife, who thought me silly for paying that much for a used car.

It never broke. It was quite economical to own – yes, economical. It threatened newer, more powerful cars in any turn – even its big brother, the Porsche Turbo. It was set at standard U.S. ride height, which meant it could be driven without bouncing it off the pavement at every curb cut or across-street gutter.

I tested a Corvette before deciding on the 911. Its bottom contacted the surface of every turn that included a hump. And only much more expensive Ferraris had instrument layouts to rival the 993. I've heard owning a Ferrari is like owning a helicopter: two hours in the shop for each hour of operation. The Porsche could easily be used as a daily driver.

But the ease with which the big-engine Corvettes, the Porsche Turbo, and that damn Viper passed me on Miller Motorsports Park's long straight had me thinking of more. I had loved this car for over five years, but it was time to consider moving on.

There are both the 996 and the brand new 997 body styles to consider since the last 993-body 911 was assembled in 1998. I'm hooked on the smaller, more agile Porsche; I wouldn't buy a Ferrari even if I had all that money.

I used to call the 996 the Vulcan 911. Porsche gave the aerodynamicists complete rein; the standard model is as smooth down each side as a baby's bottom. It's slippery in the fast air, but kind of 'plain vanilla' in appearance. It lacks the sexy 'coke bottle' form of the 993. The 'wide body' models, the 996 S and Turbo have a bit of sway or hip in the rear, but even they just don't have the visual appeal of the 993 – the tension of a cat with rear legs coiled and ready to spring – that makes the car seem in motion even while at rest.

The 997 harkens back to the 993 while continuing the evolution of the 996. It bows to the 993's hips without compromising the aerodynamics too much. It takes the new clustered instruments of the 996 and spreads them further apart while retaining the less expensive construction Porsche was striving for in the change. (Supposedly 993s' filled instrument nacelles alone cost $5,000 – the price of a Hyundai back then.)

And the 997 further refines the interior materials and amenities the 996 began changing. The 997 reverts to oval headlights similar to those of the 993, leaving the 'fried egg' lights of the 996 behind.

There was one more thing I kept coming back to as I considered replacing my 993: I kept thinking of the 1997 (993) Turbo S. Porsche didn't make a Turbo S after that until the 2005 (996) Turbo S. And Porsche hasn't made a Turbo S since.

The older all-wheel drive Turbo S is an amazing car: 424 HP wrung from an air-cooled engine. The water-cooled AWD 996 Turbo sports 420 HP. Both rival the power of the giant V8s and V12s and do it with only 3.6 liters, 220 cu inches, of displacement. The only way to get significantly greater Porsche power than that is with a RWD GT – a 996 GT-2 at 450 plus horsepower or a Carrera GT at 605 HP and $400,000 plus. The 997 Turbo and GT-2 have even more power, but I'm not prepared, or allowed, to pay those prices.

In fact, a mint low-mileage 1997 Turbo S now costs about as much as it did new. I'm not prepared to pay that price either. So, I drove a couple of examples and then bought a 2005 Turbo S coupe. That was not easy to do as Porsche built a lot more cabriolets than they did coupes in this rare model. It has Slate Grey Metallic paint, a full black leather interior, and an Alcantara cloth (feels like suede) headliner.

I flew down to Torrance, California to test and buy the car. Not having time to drive it home, I arranged to have it shipped home by closed truck. This is not something I'd recommend, having found out how many excuses there are for a shipper being days late picking up.

The car has heated seats for my wife, power sport seats and both more leg and more head room for me, and a color display screen with navigation. It has memory buttons for the seat and rear view mirrors. It has a Bose stereo system. It drops the driver's window when you open the door to make it easier to close, and lowers the passenger-side rear view mirror so you can see the curb when you're backing into a parallel parking slot. It's a true Porsche 911 even while flashing amenities like a Mercedes Benz. And I've got 444 HP and 457 lb-ft of torque to play with on Larry's front straight now. Bring on the Corvettes. I've decided I kind of like the funny headlights.

I'll always miss my 993. If I'd been able, I would have kept it, and bought the newer car. I am jealous of Jerry Seinfeld's collection. The man who now owns my 993, a lawyer in Calgary, Alberta, Canada told me in a recent email that he felt it was "like a Whippet in a herd of buffalo" when he got the car out in that city's rush hour traffic. He decided to buy a 993 after "one more close call" on his motorcycle (and his wife apparently telling him to get rid of the bike).

My Canadian friend flew into Salt Lake Airport #2 with a couple of pilot buddies to pick up my Arena Red. His buddies took the turbo Cessna back and he drove his 993 home. He told me it took him over three hours to get the car through customs, and that's with all sorts of documents faxed to both sides of the line in advance. I had more trouble than that with Canadian checks at Utah banks. And that's all I've got to say about that.

I'll see you out there.

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Porsche Wins American LeMans at Miller Motorsport Park

Porsche teams dominated at this year's Utah Grand Prix. The American LeMans Series made it's annual stop in Utah on May 18th. The race was run on at the wonderful Miller Motorsports Park (yes, the same one you can drive during the club's HPDE days). The raace ran on the 3.05 "perimeter " course this year (it ran on the 4.8 mile full track the last two years).

The race was a showcase for the best Porsche has to offer. In the Prototype class, Porsche fielded four cars in the "slower" LMP2 class. The Penske team finished 1rst and 2nd overall. The Dyson team finished 4th and 6th, also finishing ahead of the Audis—the best finisher in the "faster" LMP1 category.

In the "production based" Grand Touring category, the 911 GT3 RSR competes in the GT2 category. The Flying Lizard team finished 1rst and 2nd in class (13th and 14th overall). Other 911 GT3 RSR entries finished 4th (Farnbacher Loles), 6th (Flying Lizard), 10th, and 11th (both Vici Racing) in class.

The overall (and LMP2 class) winning RS Spyder (Penske Racing) passes the GT2 class 911 GT3 RSR (Flying Lizard) - photo by Eric Schramm

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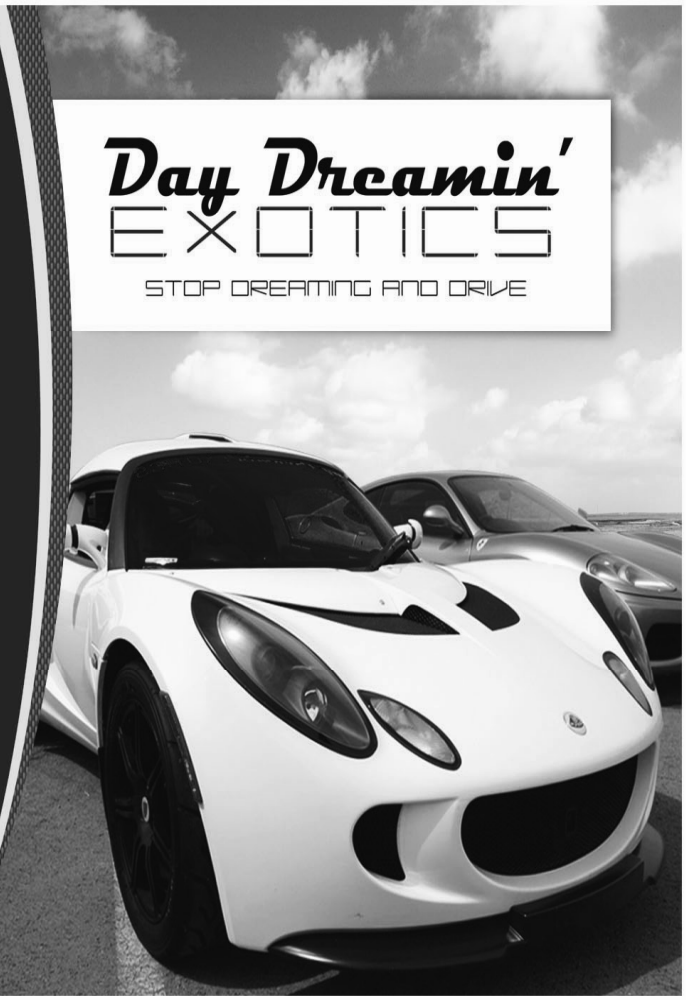


Porsche Tops J.D. Powers

ATLANTA--(BUSINESS WIRE)-- Porsche continues to meet and exceed the quality demands of consumers in its largest export market, the United States. Porsche recorded the top ranking of all brands surveyed in the 2008 J.D. Power and Associates “Initial Quality Study”. This makes it three consecutive years that the Porsche brand had the fewest problems per 100 vehicles in this prestigious brand ranking. The scores were based on interviews of 81,500 new car owners from across the country.

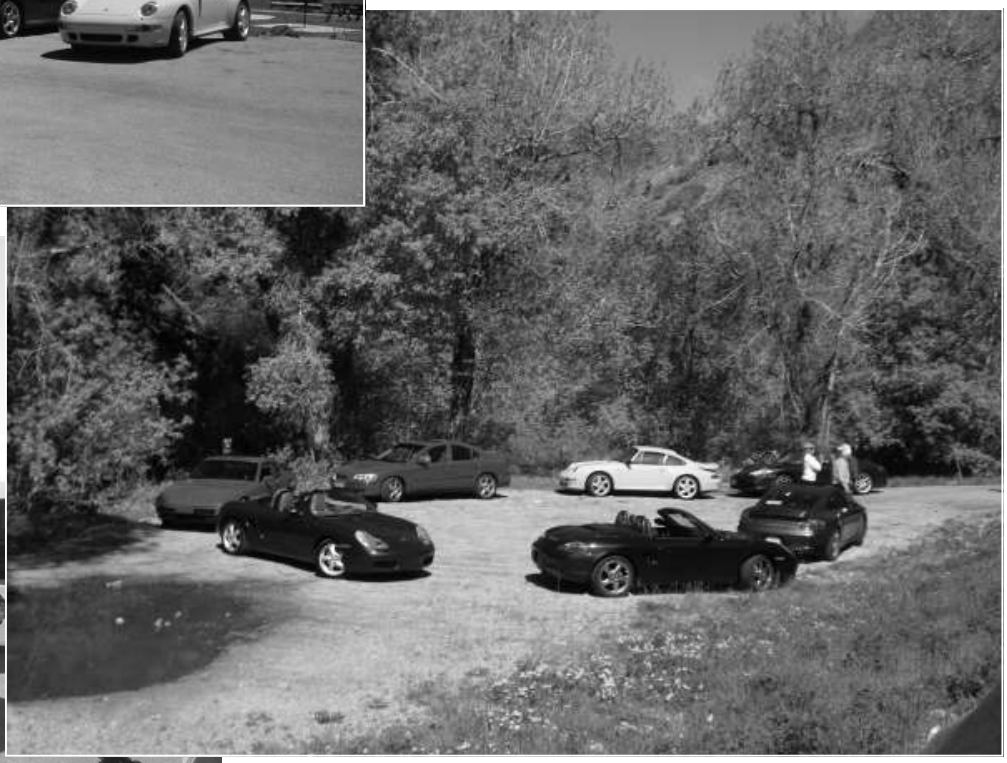
Incredibly, not only did the Porsche brand come out on top, but the legendary Porsche 911 has the highest initial quality of any vehicle in the study. According to J.D. Power and Associates, the Porsche 911 has the fewest quality problems in the industry, with just 67 problems per 100 vehicles.

Every year, J.D. Power and Associates assesses the level of satisfaction among buyers of new cars after the first 90 days of vehicle ownership. On this basis, a customer is asked to fill out a survey containing 228 criteria regarding quality and workmanship.

JUNE DRIVING TOUR

BY ED & KATHIE CHAHANOVICH, ZANA ANDERSON

The June Driving tour was originally slated for Mt Nebo. However, the road remained closed because of the snow. We met at Thanksgiving Point and from there headed south, then east at Payson on one of Utah's many, many scenic routes. We ended up at Payson Lakes which was open for business. It was a beautiful day. The road was very curvy and twisty. Fun drive. Will showed off his new Porsche. Every time we stopped, he and Doug Bledsoe were exchanging notes on their respective cars: the differences, weight, size, wheels, etc., etc. They have the same model, different years. Some of the participants were Jerry Blazek and his wife, the Bledsoes (Doug and Diane), Will, myself, Ed Minneau and his wife. We had 7 cars including one Volvo. 12 people were on the drive, which ended with lunch at Mimi's in Provo.



One Good Turn

by Stu Hamilton

Turning is another one of the things we do every day while driving, but almost never think about. We probably haven't given it much thought since we got our licenses.

We all have heard the 10 and 2 [o'clock] hand positions. We probably even got through or driving test that way. But, several years later, are we still driving that way? Despite the desire to eat, drink, make phone calls, or read a map while driving, we really ought to practice good hand positions. Even shifting a manual transmission shouldn't keep us from keeping our hands on the wheel.

So, where do our hands go when we turn? There are a couple schools of thought… both have their advantages, and disadvantages. If you watch a race on television, you'll probably notice that the drivers keep their hands at 3 and 9, and they never leave the wheel. Race cars have a very low lock-to-lock ratio—in other words, the driver can often get from full left steering input to full right steering without ever moving their hands. The advantages are that the driver can react faster in the event of a skid—feeding in opposite steering (counter-steering) quickly. The driver also never loses track of where straight ahead is, as his hands don't move from the wheel. A race car's steering wheel is very advanced, and often important engine and suspension functions can be accessed by buttons in easy reach of the drivers fingers and thumbs. For this reason, a driver doesn't want to move his hands.

For a street car, lock-to-lock is too high to steer without letting go of the wheel at some point. Although most corners can be negotiated without moving your hands, a good deal of turns will be spent with arms crossed. A shuffle approach is often used in street cars. The advantages are that your hands stay on their respective sides (your arms don't get crossed up), close to the optimum 10-2 (or 3-9) position. Smaller inputs and corrections can be made smoothly, especially if one hand lets go of the wheel (e.g. to shift on a long onramp). The wheel is rotated in your hands, so straight ahead isn't as obvious. Also, a large counter-steer takes a split second longer to put in.

In the case of a shuffle-steer, one hand lets go, and slides toward the top of the wheel. It grips the wheel, and pulls it down as the opposite hand opens and lets the wheel slide up. When the desired input is reached, the hands are once again at 10-2 (3-9) position (relative to the current wheel position, not the normal top of the wheel). To straighten the wheel, the opposite hand lets go, slides up, and grips the wheel in its normal position. As the wheel is straightened, the hand on the other side lets the wheel slide up until it is back in its original position.

However you decide to steer, you can get better—we all can!

Start by putting both of your hands on the wheel. The 10-2 (or 3-9 variation) has been taught for decades because it allows for fast reactions in the event of an emergency.

As you enter a turn smoothness is the key (that is true with everything about driving). Practice being smooth—no jerks of the wheel, no hard inputs. Control the wheel both in and out of the turn (no letting go of the wheel out of the turn, and having the steering wheel straighten itself!)

For an exercise, see how slowly you can move the wheel. I think you will be amazed! The curve that you normally toss the car into can actually be negotiated by taking several seconds to fully turn the wheel.

Obviously, a tighter turn at an intersection will require faster input—I'm not suggesting you drive slower through the turn, just see how smoothly and slowly you can crank the wheel over and back, and still make a normal turn. The smoother you can be, the better. Not only will you not spill your coffee, but you will give the tires more time to adjust to the turn (and they will work better in the process).



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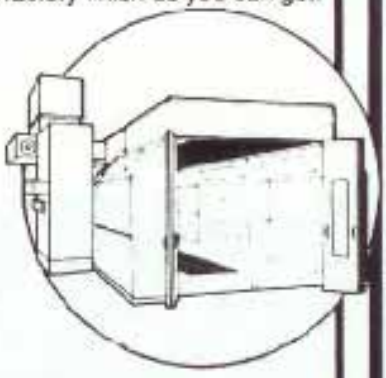

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