

# Drivers' Education Handbook

Information for Porsche Club Members  
Participating in High Performance Driving Events





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Porsche Club of America Northeast Region  
Porsche Club of America North Country  
Porsche Club of America Oregon Region  
Porsche Club of America Upper Canada Region  
Porsche Club of America Potomac Region

Signed,

Gary R. Church  
Chief Instructor, PCA Zone 2  
July 1, 2000



## Introduction to Drivers' Education

### *Description*

Drivers' Education, also known as "DE", is a driving program sponsored by selected Porsche Club of America Regions to enable members to develop their driving skills. The DE program provides a safe and controlled motorsports park environment to learn and develop advanced driving skills.

First and foremost DE will make you a safer driver by teaching driving skills and techniques which enhance accident avoidance capabilities through improved situational awareness and car control. Second, DE provides an excellent opportunity to learn about your car and enjoy its performance potential. Lastly, DE will allow you to socialize and have fun with other individuals of incredibly diverse backgrounds who share at least one common interest and passion - Porsches.

DE events are non-competitive events. DE is not a racing venue. This means there is no timing and scoring and no one charges admission to watch. DE events are closely regulated and impose strict non-racing rules on the participants to insure the safety of the cars and drivers.

The universal philosophy of DE is to be safe, learn and have fun!

### *Participation*

It is expected that all DE participants will be familiar with the operation of their car and possess adequate skills to drive comfortably in normal day to day traffic. For example, DE is not the place to learn how to drive a "stick shift" for the first time, or put the first hour on a first Porsche ever owned.

Many Regions offer introductory driving or alternative driving activities, such as high performance driving clinics, skid pad schools and autocrosses. All of these activities are excellent opportunities to develop a sound foundation for high performance driving prior to entering the drivers' education program. There are also many well recognized driving schools, such as Bob Bondurant or Skip Barber, which can provide good basic knowledge and skills. These schools supplement, but do not replace, the DE experience.

### *Objectives*

DE programs are designed to impart knowledge, develop important driving skills, encourage proficiency in the use of knowledge and skills learned and finally help the driver to exercise good judgment in challenging driving environments.



Specific objectives include the following:

- **Recognize and drive the most efficient path around a motorsports park.**
- **Use proper braking, shifting, accelerating and cornering techniques.**
- **Establish and maintain proper seating, steering wheel control and use of mirrors.**
- **Use of vision to establish and maintain situational awareness.**
- **Understand and use proper motorsports park procedures.**
- **Understand basic vehicle dynamics and car control.**
- **Have fun!**

### ***Program Overview***

The DE Registrar is responsible for registration. During an event the Chief Instructor has total authority over all aspects of the event. Closely supporting the Chief Instructor is the Chief Steward, who has purview over all on-track activities. In addition, most Regions have a designated Chief of Technical who has responsibility for enforcing car safety standards. The Chief Instructor, Registrar, Chief Steward, and Chief of Technical work closely together before and during an event to insure it is well organized and run efficiently and safely.

DE events themselves are separated into a number of different driving groups referenced by colors, which may vary by region and venue, and are based upon driving experience and car type. For example, the novice group is known as the "Green" run group, followed by the "Blue" beginner group, "White" skilled driver group, and the experienced "Black" and "Red" run groups. Drivers in the Green and Blue run groups will be assigned experienced driving instructors who drive in the White, Black or Red run groups.

New students to the Region's DE program will generally begin in the Green run group. However, new drivers with previous extensive documented experience or references may be placed in higher run groups by the Chief Instructor. Usually a "check-out" ride is required with the recommendation of a Region instructor. Previous driving school experience (i.e., Bob Bondurant, Skip Barber, etc.) will not be sufficient to place a new driver into a higher run group. Skilled and experienced drivers, however, will be accelerated to higher run groups as quickly as feasible.

Green and Blue run group students will be assigned an experienced instructor each time they are on the track and will drive at moderate speeds. Students will be encouraged to drive at speeds they are comfortable, but discouraged from traveling at speeds which an instructor believes are too fast for conditions, car capability or student experience level. Instructors will provide students with



feedback concerning driving development and ability. This information in written form is used to assess progress for promotion through the different run groups.

Although Green or Blue run group students will begin with instructors, instructors may “sign-off” a student for a particular day or event venue which will permit the student to drive around the track alone. Instructors will provide “sign -offs” when they are confident that student skills and judgments at a particular time and place will not put the student or others at unnecessary risk. Students are free to request instructors at any time they feel it would be beneficial even if they are “signed-off”.

In addition to having assigned instructors, Green and Blue students will be required to attend classroom discussion and training sessions.

Students will be promoted through the Run Groups when two or more driving instructors recommend promotion to the Chief Instructor and the Chief Instructor concurs. Students may receive a “check-out ride” from the Chief Instructor as part of this promotion process.

Promotion to the next run group comes as a result of: (1) acquiring knowledge; (2) developing skills; (3) gaining proficiency; and (4) exhibiting good judgment - all commensurate with the performance expectations of that particular run group. Generally, students can expect to spend about a year in each of the Green, Blue and White run groups.

### ***Risks***

No activity involving high performance driving is without risk of car damage and driver injury. While the years of PCA experience in conducting DE events have resulted in very few driver injuries and infrequent car damage, incidents nevertheless have been known to occur. If a driver is unable to accept these risks then they should forego DE participation.

The greatest way to minimize these risks is to listen and learn. Generally, the greatest risks are from overly aggressive and arrogant drivers who act and believe they have innate driving skills approaching those of experienced professional drivers. Moderate aggressiveness is good, extreme aggressiveness is dangerous to the driver, the instructor and other participants and cannot be tolerated. Drivers who cannot control these undesirable traits will be asked to leave an event by the Chief Instructor.

In addition to listening and learning the best investment made in DE is safety equipment for the car and driver. This includes a good helmet, seat belt harnesses, fire extinguishers and even “racing” type seats. Each driver should carefully consider the purchase of safety equipment prior to car performance improvement investments.



Many, but not all, street car insurance policies cover car damage during a DE event provided it is a non-competitive and non-timed event teaching driving improvement. Some policies, however, exclude coverage on non-public roadways. DE participants are advised to carefully review the provisions of coverage to insure they are adequately covered prior to participation in any DE event. If there is concern that normal street car insurance is inadequate or that a claim would be poorly received, insurance is available from insurance companies which cover vehicle damage or loss while the car is on track.

Drivers' Education activities are held at race tracks throughout the United States and Canada. Driving at these high performance facilities enables your Porsche to achieve speeds greater than those permitted on public highways. This means that small rocks, and even sand, found on most roadways and race tracks will impact your car at speeds which may chip or otherwise damage your car's paint and glass. The effects of multiple high performance events will be noticeable. If this is a concern protective film coating and bras are options to minimize superficial impact damage.

DE is a high performance driving activity, meaning that students will be driving their cars much harder than in a normal street environment where only about 30% of the car potential is used or explored. This translates into more demanding use of engines, tires, suspension and brakes. Fortunately, Porsches have been well designed and engineered to be up to these types of demands. Nevertheless, more intensive inspection and maintenance will be required.



## Registering and Attending a DE Event

### ***Qualifications***

First you must be a current PCA Member in good standing, possess a legal driver's license, be at least 18 years of age and in good health. Further, your car must be inspected to insure it is in good mechanical condition. Some PCA Regions only permit Porsches to be entered in PCA DE events.

### ***Registration***

To register for DE you must fill out a registration form and submit payment. Registration forms should be available from the DE Registrar, printed in the Region's magazine or available on a Region's Web Page. Costs can range from less than \$100 for a one day event to more than \$300 for a multiple day event at well known high demand race tracks such as Watkins Glen, Mid-Ohio or Road Atlanta. Because of the high demand for DE events, early registration is highly recommended.

### ***Driver Preparation***

Prior to coming to the event venue there are a number of things you must do to be physically and psychologically ready to participate. First and foremost is to be well rested. Try and get a goodnight's sleep and minimize the partying the night prior to your event. If you are taking any medication, be sure and discuss whether this medication will effect your driving. If so, you must be an observer and not an active participant in the event.

Be sure and dress comfortably and appropriately for the weather conditions and driving requirements. Be advised that you will spend a great deal of time outside and subject to the effects of sun, wind and rain. It is very easy to get windburn, sunburn and even chills on cold rainy days. Dehydration will be an issue regardless of weather, so be sure to bring and drink plenty of liquids.

Most Porsche events have very specific requirements for acceptable driver dress and equipment. Synthetic materials like nylon for clothes and shoes are not permitted. Long sleeve shirts of natural fibers are required in all DE events. Long legged pants can be of any natural material. Thin soled laced shoes, such as driving or wrestling shoes, which permit pedal feel are highly recommended. Boots, sandals and loose fitting shoes are not permitted.

In addition to appropriate and approved street clothing you will need to bring a Snell Approved SA 95 or SA 2000 driving helmet when available. A Snell Approved SA helmet is for automobile applications. Motorcycle helmets are not permitted. Generally these helmets will cost about \$300 new and coincidentally





are available for rental from some racing supply companies. Used helmets are not recommended. They may have been dropped or damaged. Both open and closed faced helmets may be used, although for added safety closed faced helmets are recommended.

It is always a good idea to prepare early and give yourself time to think about what your taking and how and when to get there. Be sure to review directions and times the day prior to the event. Try and arrive early if this is your first event to meet other Porsche Club members and get an orientation for the day's events from other participants. You will find other Porsche Club members both friendly and helpful, but because of the intensity of activities many are preoccupied with driving preparation and performance. This means you may have to take the initiative to introduce yourself to others. Don't be shy, your efforts will be rewarded with life-long friendships!

The following is a list of items which you may want to review the day before leaving for a DE event:

√	<b>PRE-EVENT DRIVER CHECK LIST</b>
	<b>Directions to track</b>
	<b>Completed technical form</b>
	<b>Driver's license</b>
	<b>PCA membership card</b>
	<b>Folding chair</b>
	<b>Helmet</b>
	<b>Watch</b>
	<b>Hat</b>
	<b>Sunscreen, insect repellent, chapstick</b>
	<b>Umbrella, rain coat or slicker (not red or yellow)</b>
	<b>Long sleeve cotton shirt</b>
	<b>Extra clothes (T-shirt, sweatshirts, shorts, etc.)</b>
	<b>Cooler with ice and drinks (lots of bottled water)</b>
	<b>Snacks</b>
	<b>Tarp</b>



### **Car Preparation**

Because your car will be aggressively driven during a DE event it is vitally important for your safety and that of your instructor and others on the track that your car be maintained in good mechanical condition. This means not only must your car arrive at the track in good condition, but it must be maintained in that condition throughout a DE event.

To insure your car is mechanically sound you will be required to have it technically inspected, or “teched”, by a qualified mechanic one to two weeks prior to a DE event. This is to identify any major or minor defects and give you an opportunity to have them repaired prior to the DE event. An approved mechanic must sign the tech form to testify to your car’s track worthiness. Cars which fail technical inspection and are not repaired will not be permitted in a DE event.

Pre-event technical inspection covers the following:

√	<b>PRE-EVENT TECHNICAL INSPECTION CHECK LIST</b>
	<b>Windshield and wipers</b>
	<b>Brake lights</b>
	<b>Mirrors</b>
	<b>Pedals</b>
	<b>Seat belts / harnesses</b>
	<b>Headrests</b>
	<b>Roll bar (if installed)</b>
	<b>Fire extinguisher (if installed)</b>
	<b>Engine compartment</b>
	<b>Engine mounts</b>
	<b>Brake fluid</b>
	<b>Oil lines</b>
	<b>Battery</b>
	<b>Belts</b>
	<b>Front and rear wheel bearings</b>
	<b>Wheels</b>
	<b>Tires</b>
	<b>Brake system</b>
	<b>Engine / transmission</b>



	<b>Fuel lines</b>
	<b>Front and rear suspension</b>
	<b>Exhaust</b>
	<b>Rust</b>

Notwithstanding the pre-event inspection your car will be inspected every morning of a DE event. This is necessary due to the wear placed on critical mechanical parts such as tires, brakes, wheels, suspension and engine during high performance driving activity. This daily inspection is an abbreviated technical inspection to check the general condition of your car. Remember, however, you the driver are ultimately responsible for condition and operation of your car.

Once you have passed the pre-event technical inspection you need to think about what you will need to keep your car maintained when you are at the track. While you do not need a complete mechanics toolset, at a minimum the following is recommended.

√	<b>CAR CHECK LIST</b>
	<b>Tire pressure gauge</b>
	<b>Torque wrench for lug nuts</b>
	<b>Jack</b>
	<b>Window marker for numbers</b>
	<b>Gasoline - full</b>
	<b>Extra oil</b>
	<b>Racer or duct tape</b>
	<b>Air pump for tires</b>
	<b>Paper towels and window cleaner</b>
	<b>Small tool kit (screwdrivers, adjustable wrench, etc.)</b>
	<b>Extra fuses</b>

***Arriving at the Track***

Don't forget if you are a first timer to make every effort to arrive at the track when it opens. This will allow time to introduce yourself to others and find out what's going on.

When you first arrive be sure you are at the right gate for entry for the PCA event. You will be expected to sign a track waiver at the gate. From there it's off



to find a convenient parking location. Don't be so excited that you do not pay attention to where you park. You do not want to be in a gully if it rains. Shade during the day is important as well as being close to bathrooms, meeting rooms, food services and other facilities.

Once you are parked layout your tarp and unload all loose objects from your car. This includes floor mats, cellular phone holders, and garage door openers. Be sure and check carefully for things like coke cans which could come out from under your seat and lodge under a gas or brake pedal.

Once your car is unloaded, do a quick technical inspection yourself as listed below to check seat belts, tire pressures and lug nut torque. In addition, check both engine and storage compartments looking and feeling for loose battery, connections, fitting, hoses, and fluids. If you have help, check your rear brake lights. If you have been assigned a car number be sure and place or mark this number on your car using a white shoe marker or equivalent. Generally, these numbers must be at least 4" tall and placed on the upper right side of the windshield and on both of the left and right rear windows. Once you are satisfied that your car is mechanically sound, place your helmet and completed tech form in the car and drive to the technical inspection station.

√	QUICK CAR CHECK LIST
	<b>Tire pressures correct</b>
	<b>Tire wear even</b>
	<b>Brake pad wear</b>
	<b>Fluids (brake, oil and water)</b>
	<b>Windows clean</b>
	<b>Lug nuts tight</b>
	<b>Wheels not bent or cracked</b>
	<b>Brake lights operating</b>

At the technical inspection station, or tech line, your car will be presented to the Region technical team which will do a safety inspection. If you have successfully completed your self-tech earlier, there should be no surprises and you should move quickly through the tech line where you will get a sign-off on your tech inspection form and receive a tech inspection decal/sticker which will be placed on your windshield.

After receiving a sign-off from tech-inspection park your car and take your driver's license, current PCA membership card and the countersigned technical form to registration where you will pickup the track and classroom agenda, run



sticker for the run group you have been assigned, the name of your instructor and any other appropriate information.

After registration you should have a few minutes to get a drink and snack, relax a couple of minutes and meet other participants prior to the drivers meeting. At the drivers meeting the Chief Instructor and Chief Steward will provide information concerning track conditions and procedures which will be used for the event. Drivers meeting attendance is mandatory for novice and beginning drivers.

After the drivers meeting you need to find your instructor. The best way is to ask around until someone can point to your instructor or his or her car. Coincidentally, your instructor will be looking for you also. Generally the instructor will find your car in the paddock by make, model, color and car number or find you and your car as you approach the grid for your first run session. Try to be patient with your instructors. They are also attempting to drive, take care of their car and at times teach multiple students!

Prior to your first run session, as well as throughout the weekend, there will be mandatory classroom sessions for novice and beginning drivers. These sessions are meant to be informative and fun and should prepare you with the knowledge necessary to have a safe and successful event.

Once your run session is announced, proceed to the staging area or false grid, lineup and wait for your instructor. If an instructor has not arrived by the time the cars in your run group are entering the track, please let the steward or marshal at pit-out know so they can locate an instructor as quickly as possible.

### ***Instruction***

The instructor's job is to help you learn how to drive safely and at the same time have fun and explore your limits and the limits of your automobile in an educational and controlled environment. PCA instructors are very experienced but nevertheless they need to know about you and your car if you are going to get the most out of the PCA driving experience.

Be sure and communicate to your instructor your driving background and experience. Also, tell him your driving objectives and concerns. What do you specifically want to accomplish, such as learn to brake better. Your instructor also needs to know the condition of your car and any modifications, such as tire and brakes, you have made.

If this is your first event, or you are a novice or beginner at a new track, you can expect an instructor to drive your car on the first two laps of the initial run session. If not, you should consider requesting your instructor to drive your car a minimum of two laps while you observe from the right seat. This allows you to concentrate on the proper line around the track as well as identify flag stations.



This also allows the instructor to better understand the handling characteristics of your car. These instructor laps will be driven conservatively by your instructor as a teaching aid so as not to either damage your car or scare you.

The success of your PCA driving experience is directly related to the enjoyment and quality of the instruction received. Unfortunately, not all students and instructors have good communications and compatibility. If you and your instructor are struggling for multiple sessions to communicate and get along, talk to the Chief Instructor and request a different instructor. Prior to this, however, you should give it your best to listen and be responsive to instruction.

It is critically important that as a student you have a good attitude. Leave your ego at home. Proficiency in high performance driving is only accomplished by acquiring knowledge, developing skills, practicing to proficiency and applying good judgment in challenging situations. All of this takes time and that equates to many hours of seat time. In most cases this is a three to five year process.

When you are on the track your instructor will evaluate your driving by a number of factors. These include smoothness, accuracy and consistency driving the line, car control, shifting, turning, accelerating, braking, aggressiveness, awareness, judgment and speed around the track. Your instructor will be happy to discuss his evaluation and recommendations for improvement. You will be evaluated in comparison to the expectations of those in your run group.

You will be able to run solo when and if the instructor(s) believes you can drive under control and you demonstrate situational awareness and reasonable judgment. You will be promoted when and if your instructor(s) and the Chief Instructor believe your skill, proficiency and judgment have matured to the next performance level.

### ***On the Track***

Entering the race track for the first time as a driver with an instructor in the right seat is no doubt a new and exciting experience. Although the basics will be covered in a classroom session prior to your first drive, it is still worthwhile to mention a few important points.

You as a driver are ultimately in control of your vehicle. Unless your car has dual steering, accelerator and braking controls the instructor must influence car control through the driver by a combination of concurrent hand gestures and voice instructions. Generally, these hand and voice signals will be demonstrative and abbreviated. Your instructor will use terms such as “gas, brake, turn-in and unwind” . Please review the use of terminology and hand signals with your instructor prior to entering the track for the first time.



High performance driving is both a physically and mentally demanding activity. A typical pattern for a novice driver is that driving skills improve with every run session and then seemingly deteriorate near the end of the day. In most cases this is simply a result of fatigue. A good overnight rest and performance again improves. If at any time you feel tired or lose concentration, come in if you are on the track or even sit out a run session.

In a high performance driving environment you must be particularly attentive to changes in the way your car feels or sounds while you are on the track. If you notice any change from normal in your car's behavior, safely reduce your speed, advise your instructor, and be prepared to drive off the track and stop or go immediately into the pit area.

Instructors are not permitted to give rides to students in the experienced run groups. Instructors may however take students in instructor cars in other run groups for the purpose of demonstrating selected driving techniques at speeds compatible with those of that particular run group. As a student you should be aware that the circumstances of riding with instructors are closely controlled by the Chief Instructor.

Procedures for coming out of the pits and onto the track, passing and being passed, flag meaning and flag station locations, driving the line and a myriad of other topics enabling you to knowledgeably and confidently drive on the track with others will be introduced and discussed in classroom sessions and drivers meetings.



## Drivers' Education Rules

1. Participants must be at least 18 years of age, possess a valid driver's license, be a member or affiliate of PCA in good standing and be in good mental and physical health.
2. Unless otherwise stated, only Porsches which pass all technical inspections may be permitted on the track.
3. Participants must wear thin-soled shoes, long pants and long sleeve shirts of natural material including cotton, linen or wool.
4. Participants must use a Snell SA95 or later rated helmet.
5. Pets are discouraged and in some cases prohibited, but if present must be controlled and on a leash at all times.
6. Fire extinguishers are permitted, but must be at least 2.5 pounds of approved chemical and securely fastened metal to metal and within reach of the driver.
7. Street tires must be in good condition and have a minimum tread depth of 2/32 inch.
8. All sunroofs must be closed while the car is on the track.
9. All open cars, including Targas and Boxsters, must have roll over protection which conforms to the following: with the occupant(s) firmly seated and belted into the vehicle, the occupant(s) helmet must be below a straight line drawn from the top of the windshield and the top of the roll bar or roll hoop, OR a factory hardtop must be in place.
10. Driver's side window must be fully open at all times. Passenger window may be full up or full down.
11. All cars with modifications that exceed those permitted for the "stock" or "prepared" classes by PCA Club Race Rules must have a roll bar or roll cage which meets PCA Club Race specifications.
12. Driver and Passengers must have available and wear an equivalent restraint system.





13. All participants must obey all passing rules set forth by the Chief Instructor in the Driver's meeting. For novice and beginner groups this means that passing must be completed on designated straights prior to the brake zone. For other run groups this means that passing must be completed on straights prior to turn-in so that cars proceed single file through the turn apex.
14. All drivers must obey all displayed flags at all times.
15. Drivers who spin or take four wheels off at any time are required to pit within one lap.
16. No illegal drugs are allowed and no alcoholic beverage may be consumed by anyone (participant or guest) until the track is closed at the end of the day.
17. All participants and guests must read, understand and sign the PCA Waiver of Liability and Indemnity Agreement.
18. This is a non-competitive event. Racing will not be permitted. Official timing of cars for competitive purposes and publication of times will not be permitted. This does not, however, preclude the Chief Instructor from timing participants strictly to segregate groups of faster and slower cars for safety reasons.
19. Slower cars have an obligation to permit faster cars to pass safely in approved passing zones. This means that in many cases slower cars must provide an early demonstrative passing signal then lift to permit safe passing to be completed. Even a high power car can be the slower if a low horsepower car is faster completing laps around the track.
20. Only participants signed up as drivers are permitted in cars while on track. Novice and beginning drivers are not permitted to have a non-assigned instructor in their car unless approved by the Chief Instructor.
21. Instructors participating in the event are permitted to ride with other experienced drivers only in that experienced or skilled drivers run group. The Chief Steward shall be notified and acknowledge the driver and passenger prior to the car entering the track.
22. The Chief Instructor has the authority to modify these rules at his discretion. In addition, the Chief Instructor may dismiss anyone from a DE event at any time for any reason. Any participant who feels they are unjustly treated may appeal the actions of the Chief Instructor to the Region Vice President, who is in charge of safety, prior to the next DE event.
23. . Driver meeting attendance is mandatory for novice and beginning drivers.



## Drivers' Education Terminology

**ACCELERATION:** The addition of speed, normally caused by an engine either pulling or pushing a car.

**AERODYNAMICS:** The science dealing with a car passing through the air.

**APEX:** The center point of a turn with respect to entering and exiting.

**BOTH FEET IN:** The action of putting the clutch in with the left foot while simultaneously and aggressively braking to lock the wheels. This is done when a spin is no longer recoverable.

**EARLY APEX:** having the inside wheel come close to the inside of a corner before reaching the midpoint of that corner.

**LATE APEX:** having the inside wheel come close to the inside corner past the midpoint of that corner.

**AUTOCROSS:** The sport of driving a fixed number of laps on a pylon defined course with the objective of completing the course in the minimum amount of time while not hitting any pylons or cones.

**BERM:** A raised portion of the edge of a turn or bank or mound paralleling and well away from the track surface.

**BRAKE MODULATION:** Easing off the brakes slightly when you feel the wheels locking and then reapplying the brakes. ABS does this automatically.

**BRAKING ZONE:** A section of the track within which a car begins and completes braking, usually preceding a turn.

**CAMBER:** The extent to which a tire is not perpendicular to the ground.

**CASTER:** The extent to which the turning axis of a tire is not vertical.

**CENTER OF GRAVITY:** The center point at which the vehicle will balance.

**CENTRIFUGAL FORCE:** The force towards the outside of a circle.

**CENTRIPETAL FORCE:** The force towards the center of a circle.

**CHICANE:** A single S-shaped bend in a course.

**CHUNKING:** The process of a tire losing small pieces of rubber from the tread.



**CORNERING:** Driving in an arc predetermined by either a limiting barrier such as a pylon, or by mental design on part of the driver.

**DECELERATION:** The slowing of a vehicle, normally done by applying brake pressure.

**DECREASING RADIUS TURN:** A turn which begins gently and becomes more severe or sharper.

**DEEP:** Delay braking or turning later than normal when driving into a braking or turning area.

**DIVE:** A word sometimes used to describe the pitch motion in a car under braking.

**DOUBLE APEX TURN:** A long sweeping turn that is apexed twice.

**EGRESS CORNER:** A corner that exits onto a straight-away.

**ENTRY ANGLE:** The position of a car relative to an approaching corner.

**ESSES:** A series of turns in the shape of an S.

**EXIT ANGLE:** The position of a car relative to leaving a corner and approaching a straight-away.

**FALSE GRID:** An area along side or near the track or pits where cars line up in single or double file in preparation of beginning an event.

**GRID:** The act of lining up on the false grid prior to beginning a run session.

**HEEL AND TOE:** A driving method whereby the right-foot is used to control both the accelerator and the brake.

**HOT GRID:** The pit area where cars enter from the track for service prior to re-entering the track.

**INGRESS CORNER:** A corner at the end of a straight-away.

**LEFT FOOT BRAKING:** Using the left foot to operate the brakes in a car, thereby maintaining chassis set.

**LIFT:** Reducing the engine throttle position.



**LINE:** The optimal physical line of position and movement that a car takes around a track for any specific car and track condition.

**MARBLES:** Balled up tire rubber near the edge of the track or driving line.

**NEGATIVE CAMBER:** A wheel alignment which places the top of the wheel in toward the car and the bottom of the wheel out away from the car.

**OFF-CAMBER:** A turn that falls away toward the outside of the turn.

**OPEN-UP:** To turn the steering wheel to increase the radius of a turn.

**OVERSTEER:** A condition where the rear end of the car slides out around a turn.

**PADDOCK:** Parking area for participating cars and equipment.

**PIT:** The act of driving into the pit area.

**PIT-IN SIGNAL:** A clenched fist raised outside the driver window to indicate you are driving from the track into the pits.

**PIT-OUT:** The area between the grid and track.

**POWER DOWN:** Begin depressing the accelerator.

**PYLON:** Cones which may mark key positions around a turn (i.e., turn-in, apex or track-out)

**PYROMETER:** A technical instrument used to accurately gauge the temperature of the rubber compound on a tire.

**REDLINE:** The maximum safe engine speed.

**SHOCK ABSORBER:** A dampening device used in conjunction with springs to reduce bounce and stabilize the ride of a vehicle.

**SHORT SHIFT:** Shifting prior to the engine reaching high RPMs.

**SPRINGS:** Devices of various shapes that support the weight of a vehicle in a resilient fashion.

**STAGING:** Lining up prior to entering the track and beginning a run session.

**SWAY BAR:** More correctly called an anti-roll bar, this device reduces body roll and is normally mounted laterally at the front and rear of the car. Also called an anti-swaybar.



**TENTHS:** Used to describe relative speed or driving effort around a race track - ten-tenths meaning maximum effort and speed.

**THRESHOLD BRAKING:** Maximum braking with the wheels on the verge locking.

**TORSION BARS:** A supporting device much like a spring, only instead of moving up or down, they torque or twist.

**TRACK-OUT POINT:** The point on the course at which the car should be when you have completed the turn.

**TRAIL BRAKING:** A condition whereby the driver maintains braking while entering a corner.

**TRAILING THROTTLE OVERSTEER (TTO):** Oversteer caused by lifting off the gas or braking while in a corner. Rear engine cars are noted for this.

**TURN-IN:** A point from which an initial steering wheel input is made to enter a turn.

**TYPE I TURN:** Turn leading onto the longest straightway.

**TYPE II TURN:** Turn coming off the longest straightway.

**TYPE III TURN:** Turn that is no either a Type I or Type II turn.

**UNDERSTEER:** A condition where the does not want to turn in response to a steering wheel input.

**UNWIND:** To turn the steering wheel to increase the radius of a turn.



## FAQ About Drivers' Education

### **1. Do I need special equipment for my car?**

If you are in the Green Run Group you should drive your street Porsche without modifications, such as special brake pads or tires. As a new driver, the greatest improvement will come, not from modifying your car, but from developing skills and simply gaining experience.

The first consideration for investments in DE should be focused on your safety. Helmets, restraint systems, roll bars, racing seats are all good investments.

As you move up to more advanced Run Groups, such as the Blue Run Group limited modifications will improve your car performance while minimizing wear and tear on street components like brakes and tires not meant for continuous and aggressive high performance driving.

Other modifications, such as suspension and engine, should be carefully considered only after you have reasonable track experience (i.e. White Run Group). Not only are these modifications expensive they can substantially affect streetable and car value.

### **2. Will I learn how to race?**

The answer is no. While you will learn one of the basic critical skills of racing, that is high performance driving, you will not learn aggressive positioning, passing and other racing skills. There are a number of outstanding racing schools and venues where you can learn to race - PCA DE is not one of them.

### **3. Will I be forced to drive too fast or too slow?**

As you begin your DE experience you will be assigned experienced Porsche driving instructors. These instructors can assess your skills and your car's potential very quickly. This will establish what is hopefully two comfort zones, yours and your instructor's. Staying within these overlapping zones will insure that both you and your instructor will enjoy the DE experience regardless of the speed you drive the car.

### **4. Can I bring family and friends?**

Absolutely, PCA is a family organization and encourages participation and attendance by family and friends. While there are no spectator entry fees for DE events, you may want to check and see if there are extra costs for meals, etc. associated with any event attended by family or friends. You should be aware that some PCA Regions discourage non-participants in pit and paddock areas



due to safety concerns, so be sure and check in advance if there are any special rules.

**5. *Can I bring children and pets?***

While there is no prohibition on children and pets, you should give very careful consideration prior to bringing them. Open areas with many car movements, tools and equipment are not a safe environment for children or pets, therefore both children and pets must be closely monitored and controlled. This will require pets to be on a leash or in a confined space at all times. Secondly, since these are basically outdoor events weather conditions can be uncomfortable for all and in the case of pets and children potentially dangerous, especially if children or animals are confined in vehicles.

**6. *Is there any material I can study prior to coming to the track?***

There are many outstanding books and videos which can provide outside background information to enhance the DE experience and accelerate knowledge. Just be aware that there are many different approaches to teaching high performance driving and one is not necessarily right and another wrong. Also, sometimes you will hear or read information which is either incorrect or can be easily misinterpreted. Therefore, do not become too opinionated or too argumentative too early in your high performance driving experience. Listen and learn different reasonable approaches and techniques and adopt the ones that work best for you during your track tenure.

**7. *What are the waivers I will be asked to sign?***

When you come to the track you will be asked sign liability waivers both by the track ownership and PCA as a precondition to admittance and participation. This simply acknowledges that you are aware of the environmental hazards and will hold the venue and PCA harmless should damage or injury occur. If you have any reservations about signing these standard waivers of liability, please consult your lawyer.

**8. *Is there something I can practice before I come to the track?***

There are many driving techniques which you will learn which could and should be used and practiced on the street. These include vision and situational awareness, shifting, braking and turning. All of the techniques learned at DE, if integrated into your day to day driving style, will make you a safer, smoother and more proficient driver.