Lone Star Region PCA

Performance Driving School

Participant Handbook ©

Lone Star Region of the Porsche Club of America
September 2008

The purpose of this Handbook is to assist all our Performance Driving School (PDS) participants in understanding the rules and procedures by which they will be asked to abide. Safety is our primary concern, and our rules and procedures reflect this concern.
This form of the PDS Handbook was originally written for and by the Lone Star Region in 2008 and incorporates the input from many sources, in particular the Houston SCCA and the Houston BMW CCA.
In addition to the material in this Handbook, we suggest you visit the Lone Star Region website at www.lsrpca.com/AX/AX.html

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LSR PCA Performance Driving School
Participant Handbook

1 INTRODUCTION

1.1 General Information

The Lone Star Region PCA is organizing the Performance Driving School (PDS) as yet another opportunity for members to begin to safely explore the full potential of their Porsches and their driving skills. As the name implies, this is an opportunity to learn, not to race.
This program is intended to complement and enhance our existing High Speed Driver's Education (DE) and Auto Cross (AX) programs in a safe and non-intimidating, fun environment.

This Handbook should cover many of the questions participants will have about the club's PDS. In the event we have missed something that concerns you, the club's PDS organization is always here to serve the participants and look forward to questions and comments, whether by email, phone, or at the track.

1.2 Commitment to Safety

You will hear this word over and over again - SAFETY. It is the main concern of our Texas Regions and PCA. We want you to feel as strongly about it as we do. With your safety and the safety of the instructors and track workers in mind, the following policies will be enforced each event on every person and car at the track:

- Anyone deemed to be conducting themselves or operating their vehicle in an unsafe manner, either on track or off, is subject to removal from the remainder of the event without reimbursement.
- Any driver who causes damage to another participant's car will be removed from the remainder of the event without reimbursement.

THIS IS NOT A RACING SCHOOL

As a teaching aid, several driving phenomena may be illustrated using racing conditions as an analogy because racing may be considered the extreme of performance driving. This school is intended to improve your skills and increase your ability to understand and handle the performance capability of your Porsche. You will not be taught competition driving techniques or given instruction on how to race

1.2.1 ABOUT THIS HANDBOOK

This handbook is a guide for starting your education in how to get the most from your Porsche including understanding its limitations. Within this handbook you will find a wealth of information on driving techniques, vehicle basics, and an outline of Lone Star Region

Performance Driving School exercises. No matter how many driving events you have attended, you will benefit most from approaching this school with an open mind and adopting an attitude of being here to learn as much as possible.

1.2.2 SAFETY

Per the above definition, safety is a key factor of performance driving. Safety is our number one priority at this school for both you and your car. Our instructors and volunteers are all working to ensure that everything you do as a student at this school is done in as safe a manner as it can be. Though, it must be stated that there is always a risk involved with driving, whether it is to the store or at this school. Accidents can happen and you will be required to sign a waiver before the school begins.

We view safety as not just another limitation that we are bound to abide by for legal reasons - quite the contrary. We take it seriously. Our approach is that in addition to having a designated safety chair for each driving event, we also require that every club member take responsibility for ensuring that all we do is as safe as it can be. Consider it "watching each others back", from identifying a situation that has an element of risk and bringing it to everyone's attention, to something as simple as moving an item that someone might trip over.
If you think something could be done more safely, or it looks unsafe to you - be proactive! SING OUT!

Let's address it before someone gets hurt or his or her car gets damaged.

1.2.3 DRIVING SAFELY

Limits
An important part of driving safely is to know your limits and to stay within them. When you drive beyond your limits, you are not in control and, therefore, not safe. Your driving limits will increase with experience, but you need to know your limits and drive within them before you can start to expand them.

Your Instructor
Your instructor is your guide. He/she is not here to police your behavior but to guide you through the learning process and find the best way to help you develop your skills and understanding efficiently and safely. There will be times when your instructor will tell you to do things that are not intuitive and occasionally may even seem outside your comfort zone, for example if you are in a turn and the car starts to skid the instructor may request you squeeze down on the gas pedal. Trust your instructors they are on your side and looking after your best interests – please do as they say. Sometimes, to improve we have to move outside our comfort zone.

One of the most common mistakes student drivers initially make is to overdrive their car. Your instructor will give you the best advice you can get at the time. If an instructor tells you to slow down it is not because he or she is worried that you might be faster than them, it is

because with his or her level of experience they feel that you will learn more by backing off from where you are at that particular moment. Respect their decision and obey them - that is why they are there.

Seatbelts
You will be required to wear a seatbelt at all times when you are driving your car during the school.

For optimal performance driving it is ideal to have a seatbelt/restraint system that holds your torso firmly in place while driving giving full arm and leg mobility – the best example being a 5 or 6-point harness system. This setup allows you to use your arms and legs purely to operate the vehicle controls (steering wheel, gear lever and pedals) without using them as a brace to hold you in position.

Without a 5-point harness it is possible to safely utilize a normal 3-point seatbelt system in such a manner as to be locked and holding you firmly in place. You may wish to discuss how to lock your seatbelt to limit movement normally allowed when not under braking, with your instructor.

Helmets
Due to the relatively low speeds of the Saturday exercises you will not be required to wear a helmet. However, for the non-competitive autocross on Sunday helmets are mandatory. The helmet must have a Snell 2000 rating or newer, if you are not sure what this means ask an instructor or a Tech inspector who safety checks your car on Saturday morning. The club has a limited number of loaner helmets available, if you have a helmet that is less than 9 years old, bring it with you and get it checked for compliance.

Drugs and Alcohol
No drugs or alcoholic beverages may be consumed by ANYONE, ANYWHERE on the event site until the event is finished for the day. This applies to drivers and spectators alike. You are responsible for your guests. All participants should be free from all after-effects of alcohol. However, this rule is not intended to prevent participants from taking medication as long as it does NOT have an effect upon the person's ability to control a vehicle at speed.

Vehicle Movement
There is a maximum speed limit of **5 M.P.H.** when you are not on the track. There are pedestrians (adults, children, bicycles and animals) in the pits, plus on Saturday there will be many other cars moving around between exercises. Additionally, respect the posted driving laws. Save your aggressive driving for the track.

Driver meetings
Attendance of all driving meetings is mandatory. This is where safety considerations and rules are discussed and clarified. If you miss a driver’s meeting, you will not be allowed to drive.

We are very serious about safety. You will be asked to leave an event if you violate safety rules.

1.2.4 A few words on Car Control…

Speed is not stressed in the exercises. The speed will be optimized for maximum learning. Trying to go faster will diminish your learning and could be a safety issue.

Your car will get very dirty on Saturday. There are wet pavement exercises, including a skid pad, which will be messy for your cars exterior. These wet pavement exercises allow us to reach the lessons at lower speeds and also reduce wear on tires.

As you explore driving limits, you will spin the car. Spinning, in itself, is not dangerous, but it can be frightening and disorienting. If you think you are going too fast for a particular area and are going to spin, it is usually best to look ahead and just drive straight off the track, slowing as you go. In a stadium course, there is no “edge” to drive off of. On a road or track with a pronounced edge, it is important to be driving straight across that edge to maintain control.
If you do spin:

1) **BOTH FEET IN AND STOP THE CAR** – depress both the clutch and the brake (again, this applies to drivers with manual transmission cars; drivers in cars with automatic transmissions should only apply the brake). Pushing the clutch to the floor prevents transmission/ engine damage and also prevents a stall. Apply HARD braking until the car comes to a complete stop. Since you are spinning, ABS may give early responses and you must keep the pedal fully depressed in order to quickly stop the car!

2) Watch the corner worker for instruction. DO NOT go back onto the track until the corner worker has instructed you to do so.

3) Even after the corner worker has signaled you to go back on the track MAKE SURE YOU CHECK TO SEE THE TRACK IS CLEAR BEFORE YOU GET BACK ON

2 LOGISTICS

2.1 On-Line Application

We accept applications for all PCA Texas Region events on-line through www.ClubRegistration.net. This allows for instantaneous registration with payment via PAYPAL or credit card. The system allows you to apply, reserve a garage (if available), input your prior DE/track experiences and create mandatory "IN CASE OF EMERGENCY" contact forms ("ICE").

Each Region has its own policies for the events that it conducts as to when applications may be submitted and by what criteria they are accepted, if any. Consult the sponsoring Region's website for the relevant policies.

ALL PARTICIPANTS MUST APPLY ONLINE AT http://www.ClubRegistration.net AND PROVIDE PAYMENT THROUGH PAYPAL OR CREDIT CARD. YOUR APPLICATION WILL BE ACCEPTED ONLY WHEN PAYMENT IS RECEIVED. THIS MEANS THAT, IF THE EVENT SELLS OUT BETWEEN THE TIME YOU APPLIED ONLINE AND THE TIME PAYMENT IS ACTUALLY RECEIVED, YOUR APPLICATION IS NOT ACCEPTED, AND YOU WILL BE PLACED ON THE WAITING LIST.

Once you have applied on-line, a confirmation email will be sent out sometime prior to the event. With the on-line system, you can always check on your status.
Applications made after the closing date of registration may be assessed a late fee.

2.2 Cancellation Policy

We incur significant costs in having a PDS Event. These costs include the track rental, supplies, food, etc. These are generally non-refundable costs to our club.

We have the following cancellation policy relating to PDS participants:
IF you cancel prior to 15 days before the event and we are able to substitute another participant in your place, we will roll that credit forward to the NEXT PDS event at the same track for which you have registered. Otherwise, you will forfeit all funds.
IF you cancel within 15 days before the event or do not show up for the PDS event, you will forfeit all funds.

In the situation where we cancel the PDS event, all participants will receive credit for a future PDS event. We do not anticipate this type of cancellation; however recent events (remember Ike?) have led to cancellation of similar events organized by our club.

2.3 In Case of Emergency ("ICE")

Contact and Medical Information Forms
Each entrant in a PDS event must submit an Emergency Contact Information Form at the time of application at www.ClubRegistration.net. This contains necessary emergency contacts. It is part of the application process. A hard copy can be printed on your computer.

In addition, there is a non-mandatory Medical Information Form. Due to various HIPPA laws (federal laws dealing with the confidentiality of medical information), you are not required to fill this out. However, the purpose of this form is to make medical services personnel aware of any pertinent conditions that would impact your well being, in the event medical attention is required during the event. This form will only be provided to emergency services or Emergency Room personnel for their use. We recommend you use this form.

2.4 Technical Inspections:

Lone Star Region PCA
Autocross and Performance Driving School
Technical Inspection Checklist
Revised August 2008

A) Older cars should be checked for structural integrity. Safety updates are encouraged on these cars.
B) Each car must be equipped with adequate seat belts. Where other than original factory design is used, the belt mounting must be securely anchored. Eyebolts must be welded shut.
C) All wheels must not have visible cracks or structural faults. All lug nuts must be in place and torqued to specification. Hubcaps or center caps may need to be remove prior to inspection.
D) Tires must be free of visible cracks. There must be a safe amount of tread rubber remaining on all four tires with no cord showing. Tires must not be under inflated. Tires should not rub the fender or well.
E) Brakes must have adequate pedal firmness, sufficient clean fluid in the reservoir and no apparent leaks. Brake pads should have sufficient thickness.
F) The car must not have fluid leaks and filler caps must be secured.
G) There should not be excessive wheel bearing play.
H) Batteries must be held in place securely.
I) All loose objects inside the passenger compartment or trunk(s) must be removed.
J) Safety/Tech sticker should be affixed and color-coded (at a 2-day event some drivers only come for second day and need to go through inspection) for each day.
L) Helmet stickers (issued at first event showing a good through date) should be checked. (Only Snell approved helmets, M or SA rating, which have the current available Snell rating or the one previous Snell rating are accepted, check for Snell sticker inside the helmet.) Currently Snell 2000 or newer.
M) Throttle return springs shall return smoothly with no binding action.
N) Adequate mufflers are required. Excessively loud cars should not be allowed. Noise pollution continues to be a problem for regions loosing event facilities and utmost care should be taken to protect those sites.

The tech inspection form should be downloaded (please see www.ClubRegistration.net) and printed by each participant before the event and presented at registration.

2.5 Insurance:

2.5.1 Car Damage

Each entrant assumes all risk of damage to his car during the event. This includes those times, when an instructor may be driving your car. Your regular automobile insurance may or may not provide coverage. It is your responsibility to ensure that you are adequately insured.

Since you are assuming the risk, it is your right to be satisfied with the manner in which an instructor drives your car. If you have any apprehension about your instructor's driving, please discuss this with your instructor, Team Leader and / or Chief Driving Instructor.

2.5.2 Medical Insurance

We provide secondary medical insurance for all participants at our events through PCA. In order to be eligible for this coverage, you need to be sure that you have signed PCA WAIVERS prior to entering the track facilities. At our events, there is a person at the front gate for check-in. When entering the track, there may be 2 waivers to be signed (see section 5.1).

If you have not signed a PCA WAIVER as you entered the track, locate the Registrar, Event Chairman or Chief Driving Instructor immediately. THIS IS FOR YOUR BENEFIT. YOU MUST SIGN THE PCA WAIVERS.

2.6 Times & Places:

2.6.1 Porsche of North Houston

MANDATORY classroom sessions will be held on Friday evening at **Porsche of North Houston,** located 18111 North Freeway, Houston, TX 77090, phone: 281-944-2122.
Food and drinks will be served from 6-7 pm, with a classroom session from 7-9pm. Those participants not present during the classroom session will not be allowed to run on Saturday or Sunday. **No exceptions; no refunds**.

2.6.2 Gulf Greyhound Park

Saturday and Sunday at GGP.
Gates will open at 7:00 am and you are encouraged to arrive early to prepare your spot, car and most important of all, yourself.
Drivers meeting starts at 8:00 am.

2.7 PDS Participant Handbook

Each new entrant should review this Performance Driving School Participant Handbook in detail. If you have not reviewed the Handbook recently, copies may be downloaded from our Auto Cross web pages at www.lsrpca.com.

2.8 Car Numbers:

Car numbers are not required for the Performance Driving School. You will be assigned run groups for both Saturday and Sunday.

2.9 Event Check-in

2.9.1 Porsche of North Houston

Because the classroom session is mandatory for all participants, this is the only opportunity to sign-in for the event.

2.9.2 GGP

Instructors and volunteers will be asked to sign-in at Gulf Greyhound Park.

2.10 Registration Event Packet at the Track

At each PDS event, you must bring your completed, signed a current Driver's License. You may also provide a Medical Information Form, which is strongly encouraged but entirely optional.

Your registration packet will contain:

2.10.1 Window Sticker

Each car will be assigned a Run Group color / number. A window sticker denoting the color / number of your Run Group will be in your registration packet. Place it in the upper left portion of the outside of your windshield. You are required to run your car in your designated Run Group only.

2.10.2 White Label:

A white label with your name and Team Number assigned to you. Place it on or next to your colored window sticker. You will bring your car to the grid area marked with your team number, when your run session is called (see Gridding and Staging Section). In some cases, this label may also contain a checklist of items such as "tire pressure", "wheels torqued" and "loose items removed from car". Check these items and initial the sticker before going to grid for your first run session each morning.

2.10.3 Event Schedule

Below is the Schedule that is used for the 3 day Classroom / PDS / AX event. A copy of this schedule is available on the www.ClubRegistration.net website.
All participants are responsible for following the schedule.

Classroom Agenda
Friday October 10
6:00 – 9:00 PM

6:00	-	7:00	Dinner provided by LSR PCA	
7:00	-	7:15	Introductions and overview of the School	Joost Perquin
7:15	-	7:30	What happens at an Autocross?	Matthew Kucharski
7:30	-	7:45	AX Rules & Regulations	Jim Robertson
7:45	-	8:00	Car preparation, Driving position	Jim Robertson
8:00	-	8:30	Driving and Handling Dynamics	Jim Robertson
8:30	-	8:45	Review of Saturday Driving Session	Joost Perquin
8:45	-	9:00	Wrap up and Questions	Jim Robertson et al.

Car Control Clinic - Driving Drills
Agenda for Saturday October 11th
8:00AM – 4:00PM

8:00	-	8:15	General Meeting of all the Students	Joost Perquin
8:15	-	8:45	Technical Inspection of Student Cars	(by instructors)
9:00	-	9:50	Driving Station 1	
9:50	-	10:40	Driving Station 2	
10:40	-	11:30	Driving Station 3	
11:30	-	12:30	Lunch	
12:30	-	1:20	Driving Station 4	
1:20	-	2:10	Driving Station 5	
2:10	-	3:00	Driving Station 6	
3:00	-	3:15	All Student Meeting	(recap, questions, review of Sunday)
3:15	-	4:00	Autocross Course Set up	(Required for students)

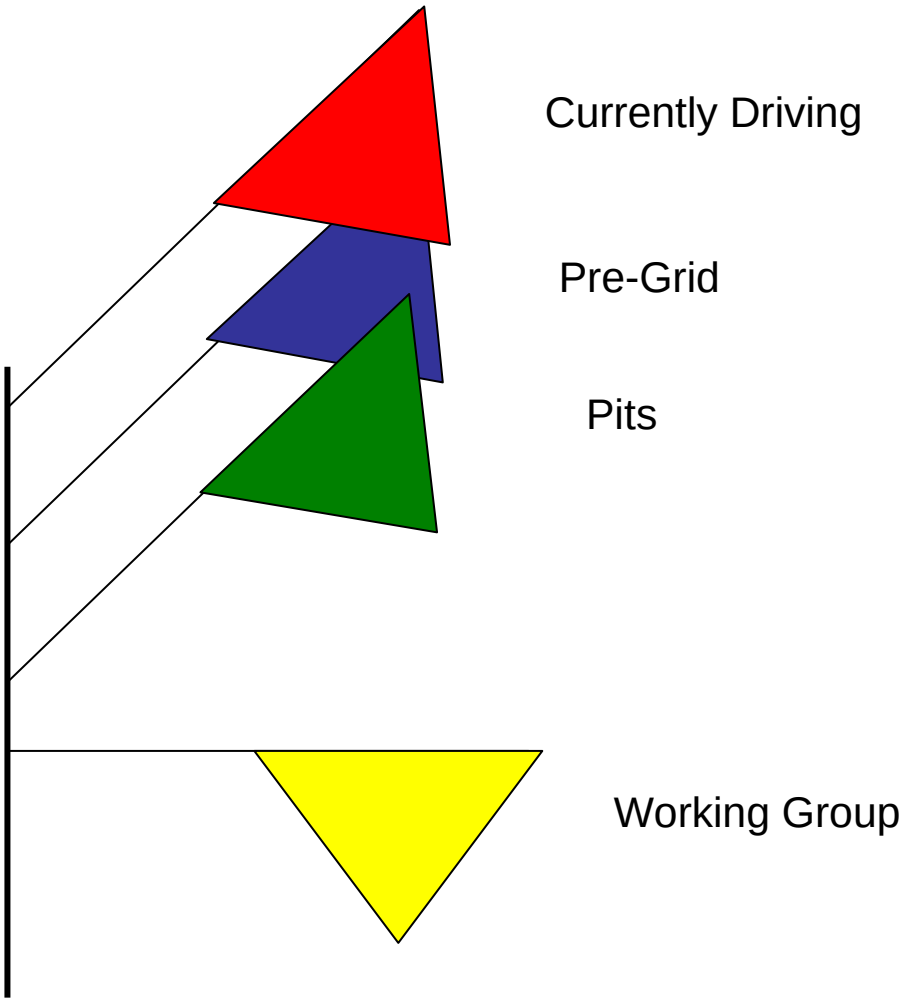
Autocross
Agenda for Sunday October 12th
8:00AM – 4:00PM

8:00	-	8:15	General Meeting of all Participants	Matt Kucharski
8:15	-	8:45	Course Walk	
9:00	-	12:00	Run Sessions	
12:00	-	12:30	Break	
12:30	-	1:00	Course Walk	
1:00	-	3:00	Run Sessions	

2.10.4 Run Groups

Session	Run Group		Work Group
1	Red		Yellow
	Blue		
	Green		
2	Blue		Red
	Green		
	Yellow		
3	Green	Timed	Blue
	Yellow		
	Red		
4	Yellow	Timed	Green
	Red	Timed	
	Blue	Timed	

2.10.5 Run Group Visual Flag System



3 VEHICLE AND DRIVER REQUIREMENTS

3.1 Prohibited Vehicles

LSR PCA reserves the right to prohibit any type of cars from its events.
The currently prohibited cars include:

- Cars with only one seat
- Any other vehicle deemed “unsafe” by the Chief Instructor

3.2 Passenger Restraints

Vehicles are required to have at a minimum a 3-point seatbelt for the driver and instructor. There is no requirement for equal restraints, e.g. the driver may utilize a harness system and the passenger/instructor my utilize a standard 3-point seat belt.

3.3 Clothing

3.3.1 What NOT TO wear, while in the car:

Prohibited items include sandals, or shoes with open toes or open heels.

We do not require that you wear a driver’s suit on the track. This is an educational event, not a competitive event. All drivers are expected to keep their car in control at all times.

3.3.2 What TO Wear:

It is mandatory that a helmet with a Snell rating of M2000, SA2000, M2005, or SA2005 be worn. M1995, SA1995 or earlier versions are not allowed.

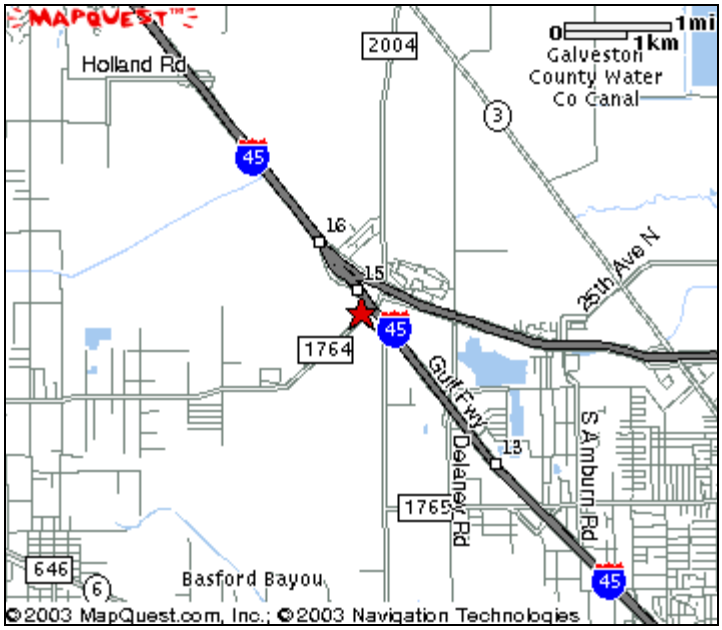
It is recommended that clothing be of natural fibers, such as cotton. Synthetic materials melt in a fire and will stick to your skin. All synthetic materials should be avoided as a safety hazard.

It is mandatory that rubber-soled, closed-toe shoes be worn. Inappropriate shoes or boots will not be allowed.

4 TRACK MAP & CAR CONTROL DRILLS

4.1 Gulf Greyhound Park (GGP)

The LSR PDS event takes place at Gulf Greyhound Park, located one block west of I-45 south at Exit 15, 30 miles south of Houston and 15 miles north of Galveston in La Marque, Texas.



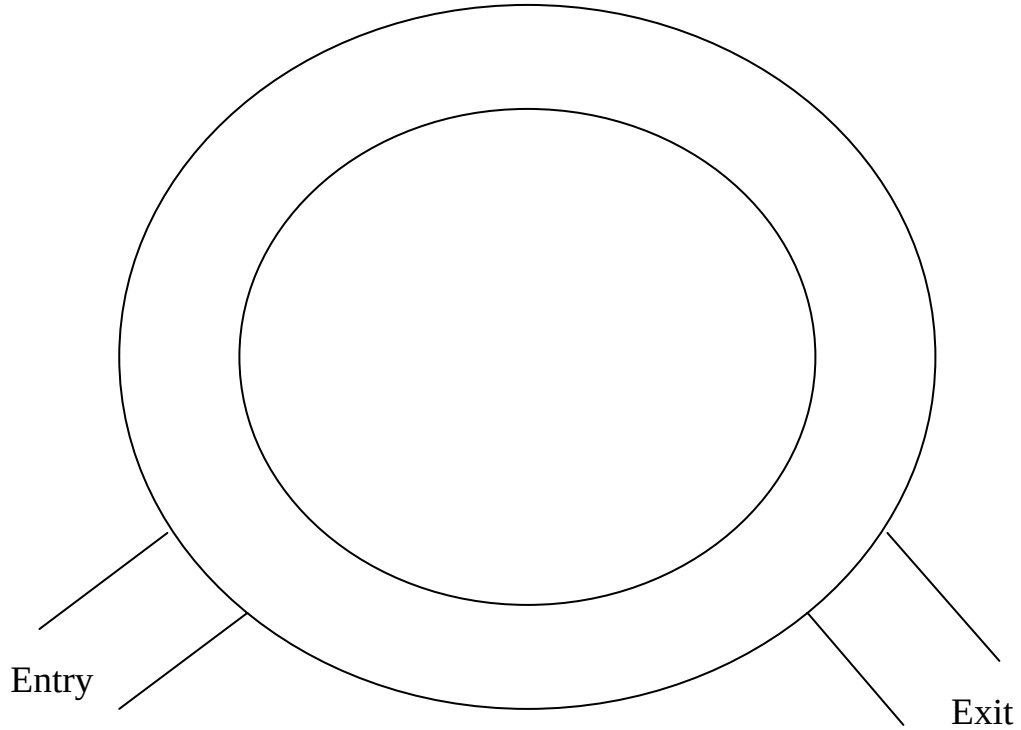
The event is staged at the GGP parking lot. You want to use the parking lot entrance on the South East side of the facility, located at **4950 FM 2004, La Marque**. See map below.

Gulf Greyhound Park
Gulf Greyhound Park - Houston TX
Parking Lot
Entrance
Trip to Gulf Greyhound Park Pt 2
© 2008 Tele Atlas
Google

4.2 Car Control Drills

4.2.1 Wet Skid Pad Drill

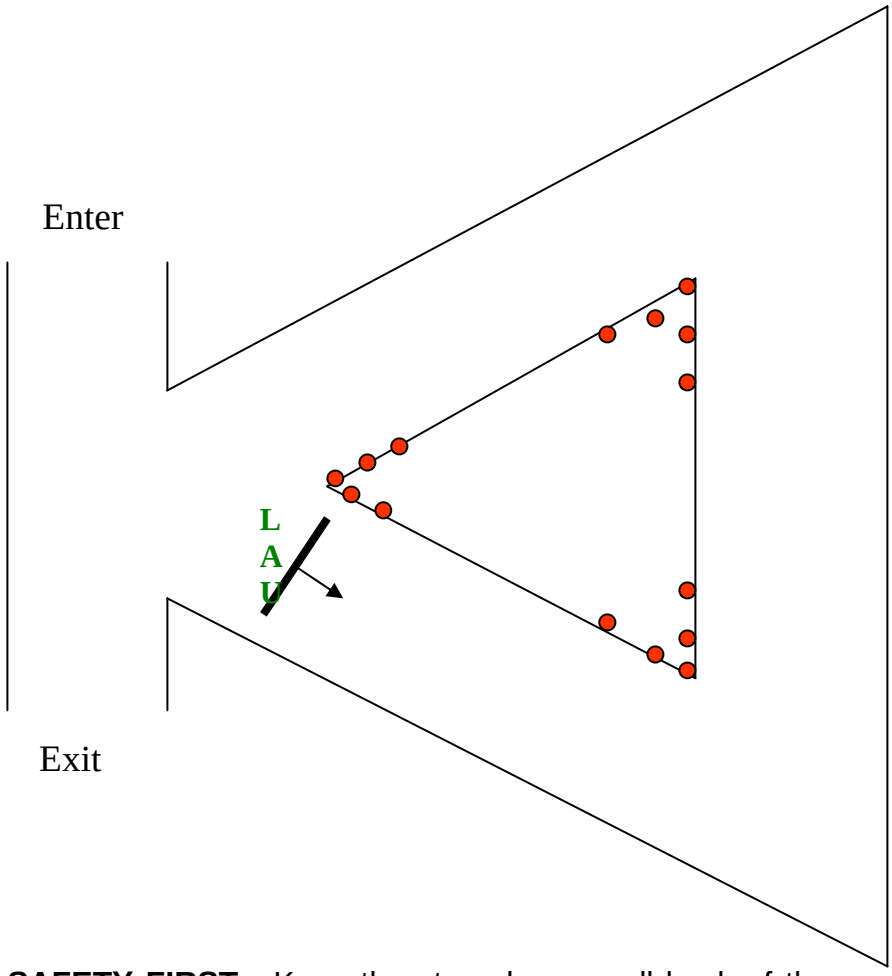
The Skid Pad inner circle diameter is to be 150 feet the outer circle is approx. 210 feet. Use pylons to create the circle and put a separate entrance and exit for the drivers.



SAFETY FIRST – Keep the staged cars well back of the skid pad to avoid a collision in the event of a skid!!!! The purpose of this drill is to learn weight transfer to the front of the car by lifting off the throttle, and weight transfer to the rear of the car by pressing on the throttle. For at least the first run by each student the instructor should ride along for six revolutions. During the first run the instructor should gradually get the student up near the limits of traction, maintaining a steady throttle until you feel the car beginning to loose traction. On subsequent runs again use approximately six laps but get the car up to the limits of traction and then lift off the throttle and experience oversteer. Warn the student ahead of time that the car may spin but that is perfectly OKand VERY instructive. On the third run again get the car up to the limits of traction and this time apply throttle, fairly strongly, and experience understeer. On the forth and fifth runs allow the student to control the car using both steering and throttle, and see if car direction can be controlled with the throttle only! Be sure to mix the direction of the runs both from a learning perspective and a tire wear perspective!

4.2.2 Braking Point Drill

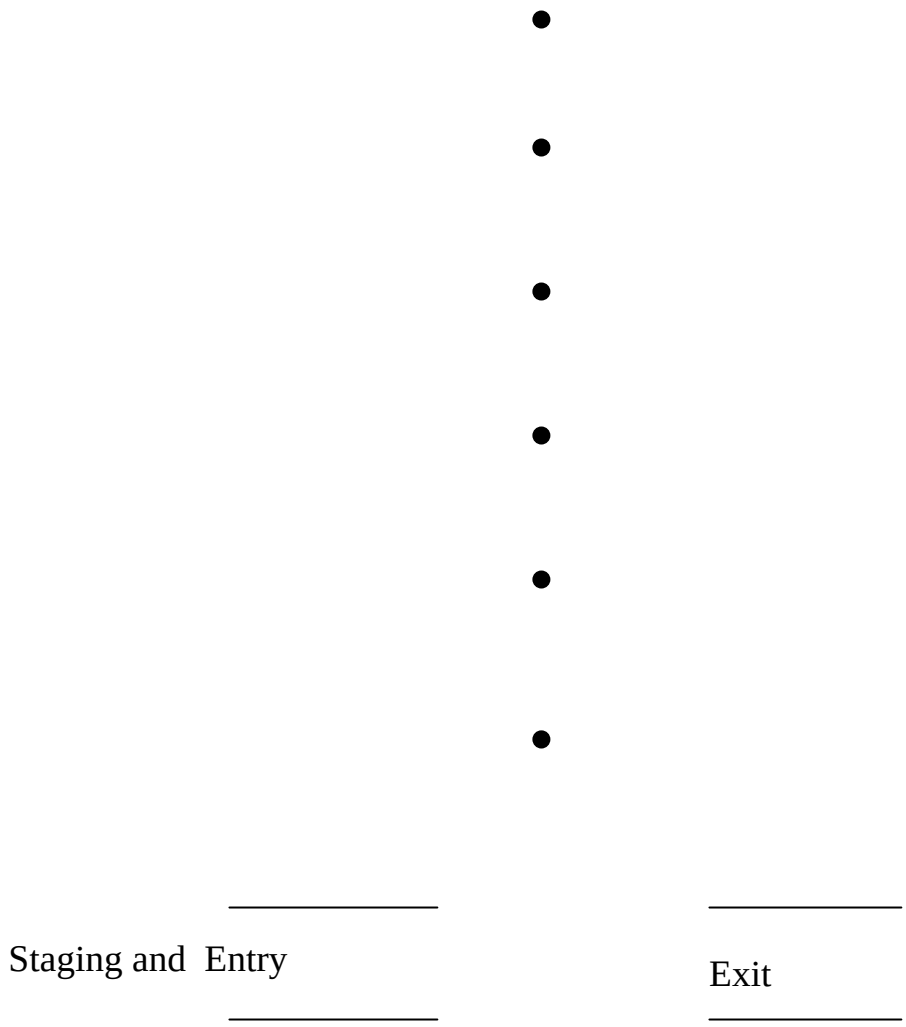
The outer legs of the triangle should be approximately 200 feet per leg with a separate entry and exit. Place three braking point reference cones at the end of each straight. The course is a series of pylons.



SAFETY FIRST - Keep the staged cars well back of the course and keep students within their capabilities!! This drill is designed to teach proper braking points. The object is to accelerate hard all the way until the braking point, using maximum brakes. Work with the student on maintaining full throttle until the braking point where the student should be right at the limit of the brakes or into the ABS. Use the braking reference cones to go deeper before braking, slowly progressing the student to deeper braking points. Take 3 – 4 laps at a time reversing direction between! Talk about brake application in a straight line good apex, and early application of throttle. ALSO, during this drill practice a few launches as if starting an autocross, pick one straight away and have the students practice a launch. Don't do too many launches as these are tough on clutches!

4.2.3 Slalom Exercise

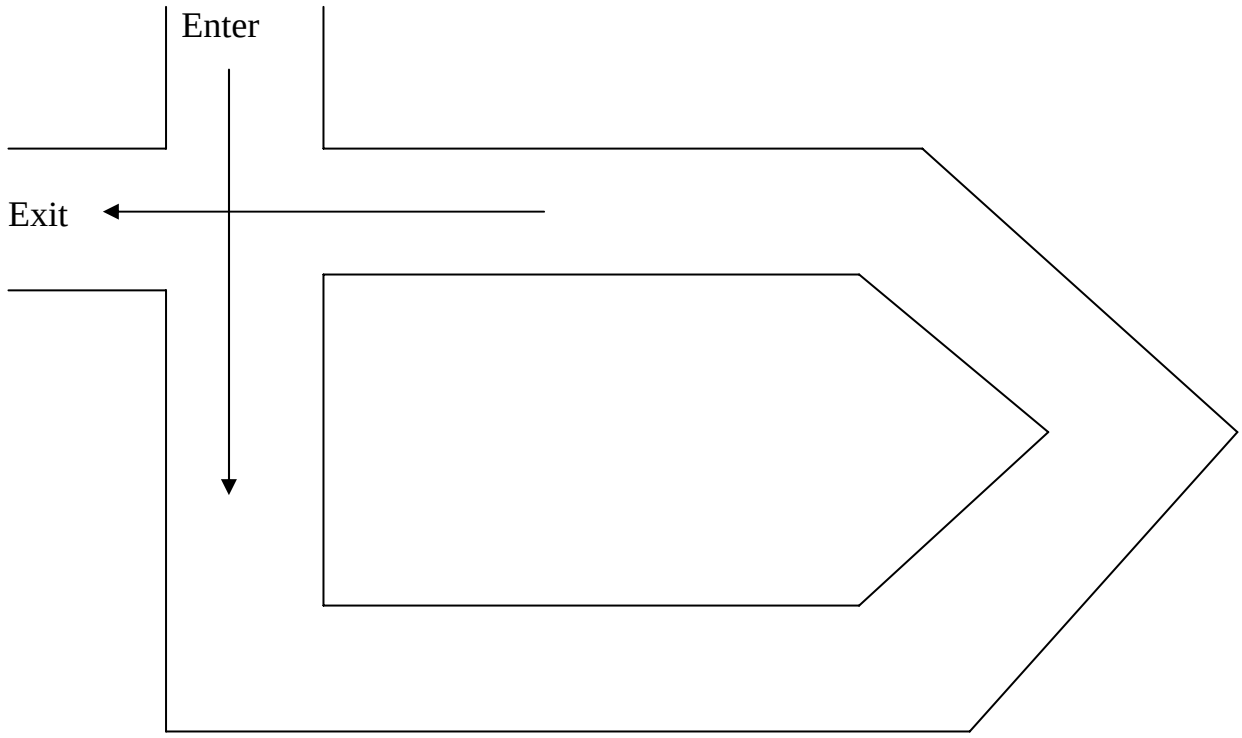
The slalom course is made up of six pylons spaced approximately 60 feet apart. Students will circle the top pylon and return in the opposite direction. The staging and entry area should be well back of the course.



SAFETY FIRST – Keep the staging and entry area well back of the course to avoid collisions!!!! In this driving drill the student will enter the course and slalom to the last pylon and return to the exit. On oversteering car work of smooth constant application of throttle, emphasize braking and throttle lifts are in a straight line! On an understeering car use throttle lift to counteract the understeer. Teach the student to turn BEFORE the car reaches the pylon to allow time for human reaction time, and the car to respond to the input.

4.2.4 Apexing Drill

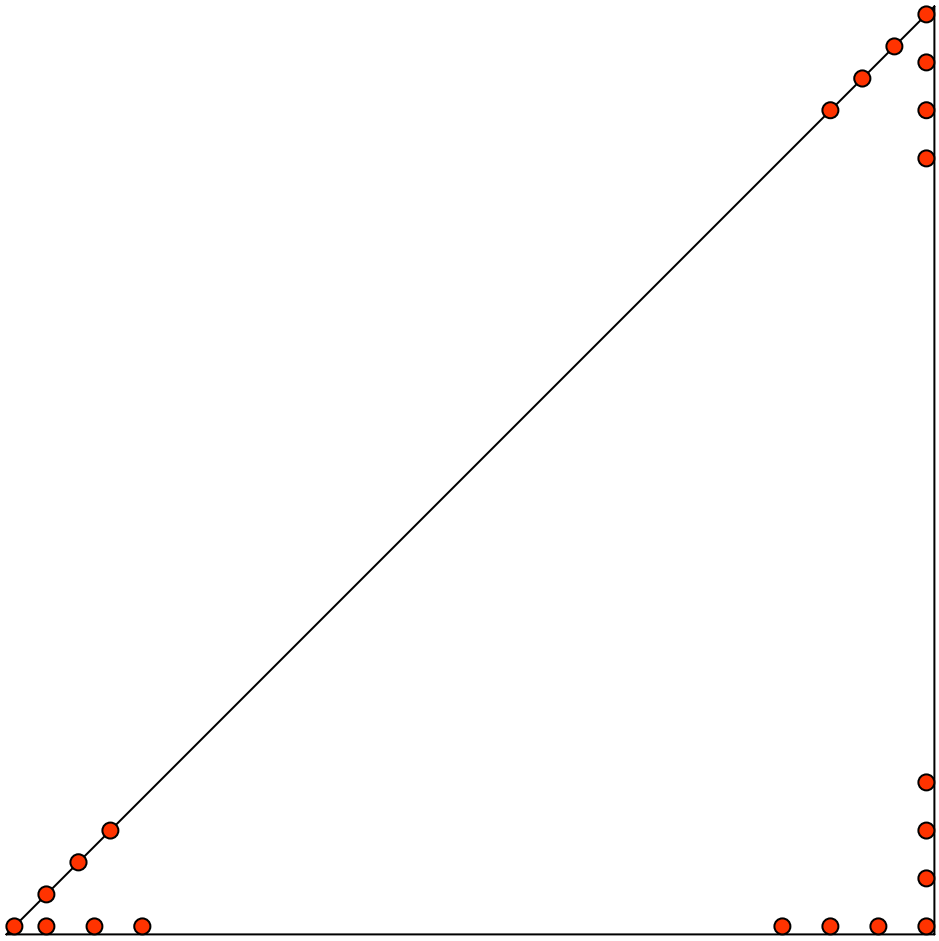
This course is set up with pylons and is approximately 150 feet on the long sides and 100 feet on the short straight side. Apex pylons should be added to the turns.



SAFETY FIRST – Keep the staging area well clear of the course and insure the student slows well before the exit!!!! The purpose of this exercise is to teach late apexes in both a standard and a very late apex turn. The key points to make are to get most braking done in a straight line before the turn, apply the throttle smoothly before turn in and maintain continued throttle while completing the turn. For both the square corners a late apex should be selected, place an apex cone for the students references. For the pointy turn a very, very late apex is called for so the apex cone is well after the vertex of the course! Students should learn to stay wide entering into turns especially on the pointy turn. Cycle through the course four or five laps at a time and them exit and talk about what happened. The students will make 4 – 6 runs through the course.

4.2.5 Accident Avoidance

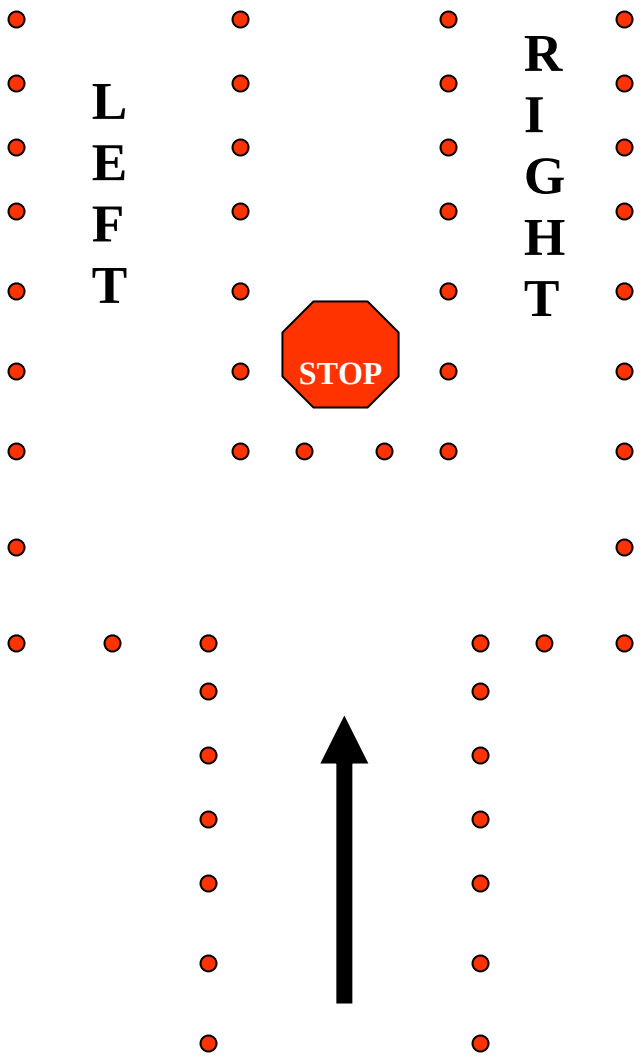
This drill is set up as a right triangle about 75 feet on the longest side. Each corner of the triangle represents the inside of a varying degree turn. The goal of the drill is to “pitch” the rear of the car beyond its adhesion limits and reliably “catch” it in order to turn. Start relatively slow and pitch the back of the car, the sequence is GAS, TURN, LIFT, GAS. With some gas on before starting the turn, turn the wheel and hold it in a constant position near the limit, lift off the gas enough to pitch the back end out and then gently get back on the gas to stop the pitch! You will practice this skill at one of the corners at first, then progress to all three corners until your student does it comfortably and in control.



SAFETY FIRST - Keep the staged cars well back of the exercise and out of the way of spinning cars!!! Also, pay close attention to your students, this can be a scary exercise and disorienting!
Also, pay attention to the condition of your student's car gauges and tires.

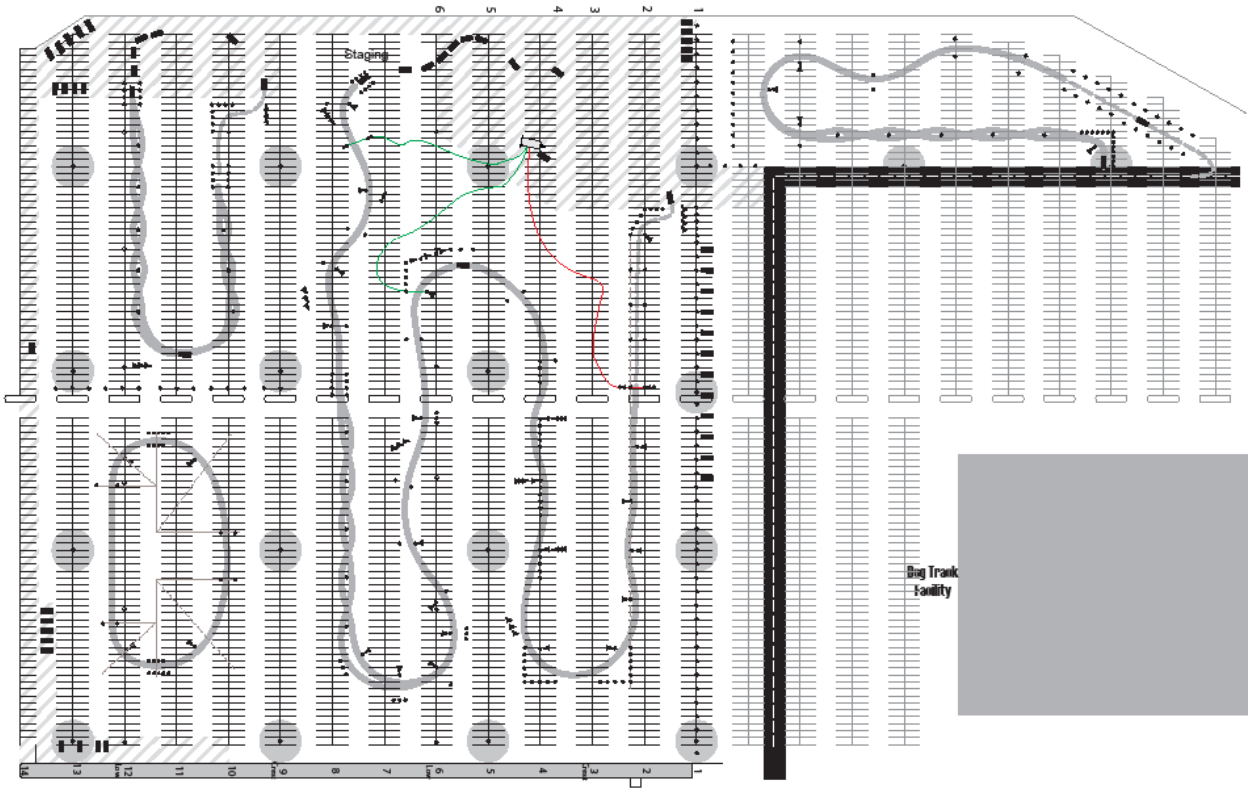
4.2.6 Pitch and Catch

This drill is set up as indicated on the diagram, and will require a flag person to direct the student left, right, or to stop. Each student drive down a traffic lane of cones with an instructor. At the end of the lane a flag person will indicate to the student to go left, right, or stop. As the drill progresses you can increase the speed of the car and the flag person can wait longer to signal. The goad is to teach accident avoidance through car control rather than panic braking. Remember there are three car control actions at work here, the initial turn or stop, if turned getting the car straight in the new lane, and possibly an oversteer or understeer correction.



SAFETY FIRST - Remember to keep the flag person well back as cars will be skidding and spinning on this drill! Make sure you build up on this drill and don't push your student too hard, this one is tough to master! Keep things well under control and within the reasonable limits of your Student! Keep the staged cars and spectators well back of the drill!

5 Practice Autocross Map



6 Corner Working

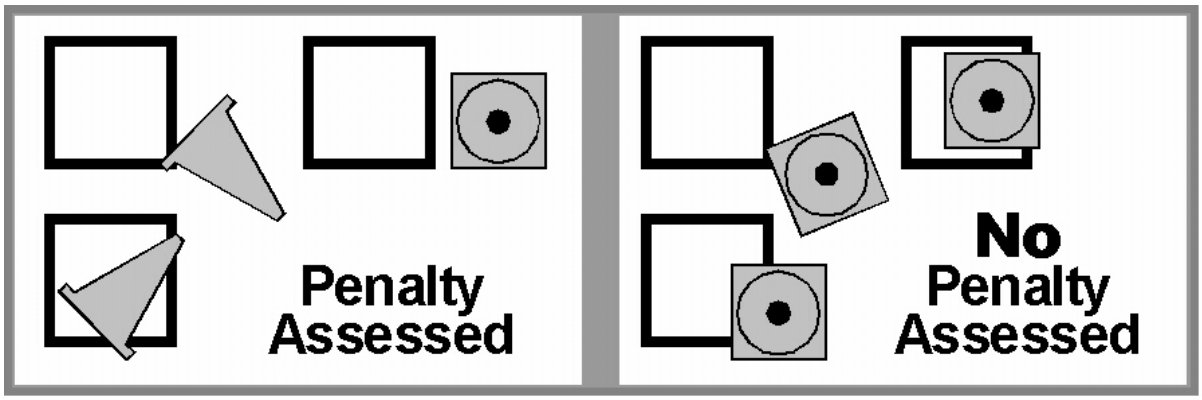
6.1 Instructions

- While at Registration, please report to the “Chief of Workers” to get a work assignment. When its your turn to work, get to your station as soon as possible.
- One person holds the red flag, unfurled, (but not flapping around) ready to be used.
- The same person holds the radio, with the volume turned up enough that instructions can be heard (particularly by the person with the flag). **The correct channel is 7$_{35}$**.
- The other people are the runners (not the person with the red flag) that check cones, and put them back in their boxes.
- Stay alert and remain standing (not sitting or squatting) when a car is on the course.
- Red flag when instructed to do so, or to avoid metal-to-metal contact (i.e. car stalled in course, 2nd car quickly approaching). Do not red flag for inattentive corner workers. It is their job to NOT to get hit. When it is time to red flag a car, quickly move to where the oncoming driver can see you and vigorously wave the **red flag** to stop the car. However, do not get too close to the car. More than one station may need to wave the flag in order to catch the driver's attention.
- No minors are allowed at corner worker positions.
- ***The use of cell phones, or video/camera equipment by corner workers is prohibited.***

6.2 Penalties

- If a car misses a gate, i.e. does not go to the correct side of a cone, that is a DNF. However, if the driver hits the cone marking the side of a gate, that counts as a cone penalty, not a DNF.

  When in doubt, do not call in a penalty.
- When calling in a penalty, use your corner number and try to **be as specific as possible about both the penalty and the car**. For example "This is corner 1. Car number ESP 42 is a DNF"; or "The red Mustang hit two cones at corner 3"; "Car ESP 42 DNF'd - they missed the last cone in the slalom at corner 1." This is especially important when calling in a DNF. Make sure you receive confirmation from timing and scoring that they heard the penalty.
- Cones when hit by a car (the **Down or Out Rule**):



If a cone is still upright, and any portion remains within the box, it is not a penalty. If it is upright and completely out of its box, it is a penalty. If a cone is knocked over, it is a penalty.

Pointer cones (those originally lying down) do not count as a penalty when struck by a car. Remember to place each cone back in its box, or as close to its original position as possible.

Safety comes first; **DO NOT RUN IN FRONT OF A CAR TO REPLACE A CONE**. It is your job NOT to get run over. Do not flag a car if a cone is out of place. It is the driver's responsibility to stop, inform the corner workers, and proceed off the course at a slow speed that does not impede other cars. He will then be given a rerun. However, if that driver hit the cone, or the cone is not out of place, the **driver will not receive a rerun.**

6.3 Photographers

Photographers, whether video or still photographers, are ***NOT ALLOWED IN ANY HOT AREA***.
A **hot area** being defined as anyplace where a spectator is not normally allowed, **including Grid**.
See your Course Map for the designated “photo area”

7 TRACK FACILITIES AND PRECAUTIONS

7.1 Waivers

As you enter the track, you will be asked to sign TWO (2) liability waivers at GGP. These waivers affirm that each person is responsible for themselves and their vehicles during the event and holds the Region, PCA, and the track harmless.
You will receive a wristband indicating that you have completed the waivers. Place it on your left wrist (not on your hat) and wear it the entire weekend.

There is a separate waiver for minors (ages 16 and 17). This form can be found at the end of this handbook. This form can also be downloaded from the LSR website under the Autocross Section, or from the official PCA website in the Library.

7.2 Speed Limits:

THE SPEED LIMIT IN THE PADDOCK AREA IS 5 MPH. THERE ARE NO EXCEPTIONS.

7.3 Garages:

GGP: There are no garages available.

7.4 Trailers

GGP: If you trailer your vehicle, all trailers must be removed from the paddock areas to the outer parking areas after unloading.

7.5 No Parking Areas

There are several "no parking" areas at every track. At GGP, please park East of the Black “L” painted on the concrete. Please observe all posted signs. Fire hydrants are coned off. Please do not remove or rearrange these or any other cones.

7.6 Damage to the track:

Should you be involved in causing damage to track property, you are financially responsible for the repair. This includes clean up of oil spills.

7.7 Minors:

Minors are permitted with adult supervision. Children should not play or walk directly through the grid while vehicles are staging. There are many moving vehicles in the paddock and paddock area and many open gates to the track. Please monitor your children's activities and whereabouts at all times.

7.8 Pets

No pets are allowed.

7.9 Vehicle Safety

7.9.1 Lug Nuts

Torque your lug nuts at least daily before beginning your first track session. You should know the torque requirements for your car in lb-ft or Nm. Determine these values before you get to the track by consulting your car's operating manual or by contacting your dealer or one of the many tire services centers where you live.
If you do not have a torque wrench, other drivers at the event will have them and will be glad to assist you.

7.9.2 Tire Pressure

Check your tire pressures when the tires are cold. Know your recommended tire pressures for both front and back tires. Recommended tire pressures vary from car to car, and individual drivers may have their own preferences. If you are unsure of the required tire pressures, consult an instructor with a similar car and tires; his recommendations may be helpful.
Generally, for the track sessions with "street" tires, your tire pressures should be increased slightly above the normal recommended driving pressures. Ensure that you do not exceed the maximum cold tire pressures, when filling the cold tires. These values are part of the information on each tire and may be found on the tire sidewall.

7.9.3 Fluid Levels

Check your fluids - and your car's fluids, too! This includes brake, steering, and transmission fluids, and oil. You personally should drink plenty of water during the event. One 16, 20, or 24 oz bottle between each track session is not excessive.

7.9.4 Fuel

Arrive at the track with a full tank of gas each morning.
GGP: Gas is currently not available. The closest source should be commercial gas stations nearby along the freeway.

7.9.5 Loose Objects Inside Your Car

Empty everything from the inside of your car, including loose objects in the trunk, glove box, center console, back seat, door pockets, under the seats, or clipped on the visor, etc. Remove the floor mats, unless they are screwed (not Velcroed or clipped) to the floor.
Objects flying around inside your car create an unsafe condition. They can jam under the pedals or cause an unnecessary and dangerous distraction, while on the track.

7.9.6 Loose Objects Outside Your Car

Before each session, please check the exterior of your car for loose items. Objects flying off your car pose a safety hazard to other drivers and track workers, who may be hit by them or must remove them from the track.
Protective "bras" may be used, but each driver must ensure that they are securely fastened to the vehicle.

8 Appendix 1 – What to Bring With You to the PDS Event

For the Driver	For the Car
Required Driving Helmet	Window Cleaner
Lawn Chair	Paper Towels / Rags
Hat & Sun Block	Motor Oil
Cooler	Brake Fluid
Snacks	Tire Pressure Gage
Collapsible Tent	Tire Pump
Drinking Water / Athletic Drinks / Soft Drinks	Duct Tape
Duffle bag Tarp for when it rains.	Tools: Tire Pressure Gauge, Air Tank, Jack, Torque Wrench

Pre Run Session Checklist

Set Goals for the Session, then …	
Before Entering the Car	In the Car
Visually inspect each wheel for wear, pressure, and lug nuts	Check interior for loose articles and remove any you find
Check exterior for loose items	Windows down
Check fluid levels -Brake -Steering -Transmission -Oil -Your own	Seat adjusted
	Mirrors adjusted
	Belts adjusted
	Brake pedal firm
	Helmet adjusted
	Take a deep breath and relax

9

10 Appendix 2 – Glossary of Terms

Apex - this is the point at which you are closest to the inside of the turn.

Autocross - single lap moderate speed competitive driving events emphasizing handling, driving skill, and education. Cars are separated and no passing allowed. Instruction is provided at every event.

Driver's Ed events (DE's) - these events are similar to time trialing with no timing.

Neutral Steering Position - holding the steering wheel with your hands at approximately 3 and 9 o'clock position – IRRESPECTIVE of which direction the front wheels are pointing i.e. it is possible to be holding the wheel in the neutral wheel position even while taking a corner with the front wheels turned off straight ahead.

Oversteer: - when the back end of the car loses traction and the tail comes out. Caused by: weight transferred to the front wheels by braking or lifting off the gas. Cured by: getting more weight onto the rear wheels by gently applying more gas

LSR-PCA Performance Driving School - held a few times a year these are non-competitive learning events. These 3-day events consist of an evening classroom chalk-talk; a full day of car control exercises; and an all day, instructional, non-competitive autocross.

Shuffle Steering - a technique to avoid crossing your arms when turning the steering wheel and to ensure complete control of the wheel. It is based on keeping your left hand on the left half of the wheel and your right hand on the right half. As you turn the wheel you pass it from hand-to-hand in order to maintain a neutral steering position.

Tech Inspection - a safety check performed on your vehicle by LSR-PCA Tech inspectors at a driving event prior to you participating in that event. This is not a good time to discover problems with your car's systems because no repair facilities are available. Be sure to have your car checked by your mechanic BEFORE the driving event, and only consider Tech Inspection as a final safety check on the day of the event.

Threshold Braking - utilizing your vehicles brakes with maximum efficiency without locking-up a wheel by applying firm pressure and increasing the pressure as the suspension sets until you feel the tires about to lock up. Past this point, you will feel the ABS or lock the wheels.

Time Trials - the next step up from autocrossing in the driver-training program. This higher speed, timed events require a special permit and instruction. They feature continuous laps with restricted passing on a parking lot course or racetrack.

Track-out point – is where you complete the turn by moving to the furthest outside edge of the track after passing the apex

Turn-in point - this is where you stop driving in a straight line and start the turn from the outside and head toward the apex.

Type I turn - leads onto a straight; most important; enables you to maximize the speed you carry onto a straight.
Execution: Late turn in – late apex – accelerate towards the apex – track out fully while still accelerating

Type II turn – at the end of a straight; 2nd most important; enables you to maintain your speed to the end of the straight;
Execution: Early turn in – early apex - straight line braking across the track towards the apex – off the brakes before the apex.

Type III turn - any other turn(s) that does not fit the definition of Type I or Type II; least important turn as not much time can be made up through here. Execution: Adopt the smoothest line that sets you up for the Type I turn following it – just get through it!

Understeer: - when the front end of the car loses traction and the car will not turn.
Caused by: weight transferred to the rear wheels by accelerating reducing front wheel grip.
Cured by: getting more weight onto the font wheels by gently lifting off the gas and unwinding the steering.

Volunteers - since this is a club of volunteers, there are many opportunities for you to expand your fun by helping at events, writing articles and taking photographs for the Witness or organizing and running events. The behind the scenes folks are no different from you - regular people that share a love for having fun with their Porsches. We strongly encourage you to participate in the variety of events this great club offers. Get involved, have as much fun as you can stand. We hope you'll soon discover that the magic of the Porsche marque is reflected in the enthusiasm and integrity of the membership of LSR-PCA.

WAIVER AND RELEASE OF LIABILITY AND INDEMNITY AGREEMENT FOR MINORS IN RESTRICTED AREAS, DRIVING OR RIDING

_____ EVENT NAME / LOCATION

_____ EVENT DATE(S)

IN CONSIDERATION of being permitted to compete, officiate, observe, work for, or participate in any way in the EVENT(S) or being permitted to enter for any purpose any RESTRICTED AREA (defined as any area requiring special authorization, credentials, or permission to enter or any area which admission by the general public is restricted or prohibited including but not limited to the competition area and the hot pit area), EACH OF THE UNDERSIGNED, for himself, his personal representatives, heirs and next of kin, signs this Waiver and Release of Liability and Indemnity Agreement for Minors in Restricted Areas, Driving or Riding ("Agreement") and agrees as follows:

1. THE MINOR AND PARENT OR GUARDIAN will immediately inspect the restricted area upon entering it and warrants that their entry therein and/or the minor's Event participation constitutes an acknowledgment that they have inspected the restricted area and find it safe and reasonably suited for the purpose of its use. The undersigned agree that if at any time in the restricted area they believe something is unsafe, it will be brought to the attention of an official and they will remove themselves from the restricted area and the minor will withdraw from participation in the Event.

2. THE MINOR AND PARENT OR GUARDIAN HEREBY ASSUME FULL RESPONSIBILITY FOR AND RISK OF BODILY INJURY, DEATH OR PROPERTY DAMAGE due to negligence of Releasees (as identified below) or otherwise, while in or upon the restricted area for any purpose including competing, officiating, observing, working or participating in the Event. The undersigned recognize and understand that there are risks and dangers associated with participation in the Event and admission within the restricted area that could cause severe bodily injury, disability and death. Further, the risks and dangers may be caused by the negligent actions or negligent failure to act of the Releasees and others. All of the risks and dangers associated with participating in the Event and entry into the restricted area are assumed notwithstanding.

3. THE MINOR AND PARENT OR GUARDIAN, release, waive, discharge and covenant not to sue promoters, participants, racing associations, sanctioning or administrative organizations or any affiliated entities thereof, track operators, track owners, officials, car owners, drivers, pit crews, rescue personnel, any persons in any RESTRICTED AREA, sponsors, advertisers, owners, lessors, and lessees of premises used to conduct the EVENT(S), premises and event inspectors, surveyors, underwriters, brokers, consultants and others who give recommendations, directions, or instructions or engage in risk evaluation or loss control activities regarding the premises or EVENT(S) and for each of them, their directors, officers, agents and employees, all for the purposes herein referred to as "Releasees", from all liability to ourselves, the undersigneds, our personal representatives, assigns, executors, heirs, and next of kin for any and all claims, demands, losses or damages of the minor and/or parent or guardian on account of any injury, including, but not limited to the death of the parent, guardian or minor or damage to property, caused or alleged to be caused in whole or in part by the negligence of the Releasees or otherwise.

4. THE PARENT AND/OR GUARDIAN hereby agrees to indemnify and save and hold harmless, the Releasees and each of them from any loss, liability, damage or cost that may incur due to the presence of the parent, the guardian or the minor in the restricted area, or in any way while participating in the Event and whether caused by negligence of the Releasees or otherwise. The parent and/or guardian further recognize and agree they are executing this Agreement on behalf of themselves and on behalf of the minor.

5. THE UNDERSIGNED HEREBY agree that this Waiver and Release of Liability and Indemnity Agreement for Minors in Restricted Areas, Driving or Riding EXTENDS TO ALL ACTS OF NEGLIGENCE BY THE RELEASEES, INCLUDING NEGLIGENT RESCUE OPERATIONS and is intended to be as broad and inclusive as is permitted by the law of the Province or State in which the Event(s) is/are conducted and that if any portion thereof is held invalid, it is agreed that the balance shall, notwithstanding, continue in full legal force and effect.

THE MINOR AND PARENT OR GUARDIAN HAS READ AND VOLUNTARILY SIGNS THIS AGREEMENT AND DOES SO VOLUNTARILY AND WITH THE UNDERSTANDING THAT SUBSTANTIAL RIGHTS ARE BEING GIVEN UP.

1. I HAVE READ THIS RELEASE

_____ Parent or Guardian (Signature/Relationship) _____ Date

2. I HAVE READ THIS RELEASE

_____ Parent or Guardian (Signature/Relationship) _____ Date

Signature and Printed Name of Participant/Minor: I HAVE READ THIS RELEASE_____ D.O.B. _____

Printed Name of Parent or Guardian: 1._____

Printed Name of Parent or Guardian: 2._____

Received by _____

Witness' Signature Witness' Printed Name Address Date

PCA-Minor & Parent/Guardian Rev. 9-26-03

Private Tutor

When it comes to autocross, Evolution instructor and multi-time national champion Andy Hollis has probably forgotten more than most of us will ever learn. He has some tips for lower times and increased success.

1. Position First, Then Speed: Positioning the car perfectly is more important than trying to attain the highest potential speed. For example, you will drop more time by correctly positioning the car closer to slalom cones than by adding 1 or 2 more miles per hour. Same with sweepers and 90-degree turns—use all of the track. Position is a prerequisite for speed: If you are not in the correct place, you will not be able go faster. Or at least not for very long.

2. Turn Earlier—and Less: To go faster, your arc through a turn must be bigger. A bigger arc requires less steering. To make a bigger arc that is centered in the same place, the arc must start sooner, meaning you have to turn earlier.

3. Brake Earlier—and Less: Waiting until the last possible moment before dropping anchor for a turn is extremely difficult to consistently execute. Add in the fact that there are no practice runs and the surface is constantly changing. It's better to start braking a little earlier to give some margin of error. And by braking less, you can either add or subtract braking effort as you close in on the turn-in point. This will make you consistent and smooth.

4. Lift Early Instead of Braking Later: Continuing with the philosophy of No. 3 on our list, when you need to shed only a little speed, try an early lift of the throttle instead of a later push of the brake. This doesn't upset the car as much, plus it's easier to execute and allows for more precise car placement when entering the maneuver.

5. It's Easier to Add Speed Than Shed It: If you are under the limit while turning, a slight push of the right foot will increase your speed with no additional side effects. On the other hand, if you are going too fast and the tires have begun slipping, you can only reduce throttle and wait until the tires turn enough of that excess energy into smoke and heat. Don't use your tires as brakes!

6. Use Your Right Foot to Modulate Car Position, Not the Steering Wheel: In a steady-state turn, once you have established the correct steering input to maintain the needed arc, lifting the throttle slightly will let the car tuck in closer to the inside cones. Conversely, slightly increasing the throttle will push the car out a bit farther to avoid inside cones. For making small corrections in vehicle position, it's much easier to use the throttle than the steering wheel.

7. Unwind the Wheel, Then Add Power: If the car is using all of the tires' capacity to corner, there is none left for additional acceleration. As you unwind the wheel at corner exit, more becomes available. If you do not unwind the wheel, the tires will start to slide and the car will push out.

8. Attack the Back: As covered earlier, for slaloms and most offsets, getting close to the cones is critical for quick times. To get close, you must move the car less, which means bigger arcs. Bigger arcs come from less steering and require earlier turning.

Now for the fun part: When you go by a slalom cone and start turning the steering wheel back the other way, when does the car start to actually change direction? Answer: When the steering wheel crosses its center point. How long does that take? If you are smooth, it takes a quarter- to half-second. Now, how long is a typical person's reaction time? Answer: About a half-second. Finally, how long does it take to go between slalom cones? Answer: Typically on the order of a full second. Given all of this information, your brain must make the decision to begin turning the steering wheel back the other way just before you go by the previous cone.

Since this is a mental issue, here's a good visualization of this technique: Try to run over the backside of each slalom cone with your inside-rear tire. In order to hit the cone with the rear tire, the car must be arcing well before the cone and the arc must be shallow. Attack the back!

9. Hands Follow the Eyes, the Car Follows the Hands: 'Nuf said.

10. Scan Ahead, Don't Stare: Keep the eyes moving. Looking ahead does not mean staring ahead. Your eyes must be constantly moving forward and back, and sometimes left and right. Glance forward, glance back. Your brain can only operate on the information you give it.

Bonus Tip. Don't Forget the Stuff Between the Marked Maneuvers: Too often we think of a course as a series of discrete maneuvers. There is typically more to be gained or lost in the areas in between. Pay special attention to the places where there are no cones.

If Road Racing were any harder, they'd call it Autocross.