

Lone Star Region PCA (Draft in Progress Oct 7, 2014)

Car Control School Handbook



Lone Star Region of the Porsche Club of America

Updated October 2014

© Copyright September 2008 and October 2014
by the Lone Star Region of the Porsche Club of America



The purpose of this Handbook is to assist all our Car Control School (CCS) 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 CCS Handbook was originally written for and by the Lone Star Region Porsche Club of America 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/CCS.htm



© Copyright September 2008 and October 2014 by the Lone Star Region of the Porsche Club of America. This document may be reproduced in whole or in part without further permission but with attribution and for non-commercial purposes only.

Table of Contents

Contents

Car Control School Handbook.....	1
1 INTRODUCTION.....	4
1.1 General Information.....	4
1.2 Commitment to Safety.....	4
2 EVENT FACILITIES AND PREPARATIONS.....	6
2.1 Waivers.....	6
2.2 Speed Limits.....	6
2.3 Parking Areas.....	7
2.4 Damage to the Facility.....	7
2.5 Minors and Visitors.....	7
2.6 Pets.....	7
2.7 Vehicle Preparation.....	8
3 LOGISTICS.....	9
3.1 On-Line Application.....	9
3.2 Cancellation Policy.....	9
3.3 In Case of Emergency (“ICE”).....	10
3.4 Technical Inspections.....	10
3.5 Insurance.....	11
3.6 Times & Places.....	11
3.7 CCS Handbook.....	13
3.8 Vehicle Numbers.....	13
3.9 Event Check-in.....	13
3.10 Detailed Schedule (7:00AM – 4:15PM).....	13
4 VEHICLE AND DRIVER REQUIREMENTS.....	14
4.1 Prohibited Vehicles.....	14
4.2 Passenger Restraints.....	14
4.3 Clothing.....	14
5 CAR CONTROL SCHOOL DRILLS.....	15
1A. Double Box.....	17
2A. Wet Skid Pad.....	18
3A. Slalom.....	19
4A. Threshold Braking.....	20
1P. Figure Eight.....	21
2P. Triangle.....	22
3P. Crash Avoidance.....	23
4P. Apex.....	24
6 What to Bring With You to the CCS Event.....	25

LSR PCA Car Control School Handbook

1 INTRODUCTION

1.1 *General Information*

The Lone Star Region PCA is organizing the Car Control School (CCS) as an opportunity for members to safely explore the full potential of their vehicles (not limited to Porsches) and to improve their driving skills. As the name implies, this is an opportunity to learn solid car control principles, and to be better, safer drivers.

The 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 is a guide for starting your education in how to get the most from your Car Control School experience. Within this handbook you will find a basic event rules, car control principles, and drill descriptions. Regardless of how many driving events you have attended, you will most benefit with an open mind and following the advice of the Car Control School staff.

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

1.2 *Commitment to Safety*

SAFETY. It is the primary consideration of our Texas Regions and PCA for every event. We hope every participant personally embraces SAFETY as a culture, not just as rules. With the safety of you and others at every event, the following policies will be enforced at every event:

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

THIS IS NOT A RACING SCHOOL

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

1.2.1 SAFETY

Safety is a key factor of Car Control. It is our number one priority at this school for both you and your vehicle. Our instructors and volunteers are all working to ensure every action is done in a safe manner. There is always a risk involved with moving vehicles, whether it is to the local store or at this school. Accidents can happen, so we must all be vigilant. You will be required to sign waivers before the school begins. These waivers will be covered in another section of this handbook.

We view safety as a tenant of good driving. As such, we take it seriously. In addition to having a designated safety chair for each driving event, we require every club member and participant take responsibility to ensure all activities are as safe as possible. Consider this process as "watching each other's back." This mindset covers everything from identifying a situation that has an element of risk and bringing it to someone'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! SPEAK UP....PLEASE!

Let's address it before someone gets hurt or vehicles are damaged.

1.2.2 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 vehicle starts to skid, the instructor may request you squeeze down on the gas pedal. Trust your instructors; they are your partner in this experience – please follow their guidance.

One of the most common mistakes student drivers initially make is “overdriving” their vehicle. Your instructor is your best resource during these times. If an instructor tells you to slow down, it is because with his/her level of experience they feel that you will learn more by backing off a bit at that particular moment. Respect their experience and follow them – that is why they are there.

Seatbelts

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

Helmets

Due to the relatively low speeds of the exercises you will not be required to wear a helmet.

Driver meetings

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

Drugs and Alcohol

No drugs or alcoholic beverages may be consumed by ANYONE, ANYWHERE on the event site. This applies to drivers and spectators alike. You are responsible for your guests. All participants should be free from all effects of alcohol or drugs. 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.

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

2 EVENT FACILITIES AND PREPARATIONS

2.1 Waivers

As you enter the event, you will be asked to sign TWO (2) liability waivers. One waiver is for the Houston Police Academy, the other is a PCA waiver. The waivers affirm that each person is responsible for themselves and their vehicles during the event and holds the Region, PCA, and the Houston Police Academy harmless. The PCA waiver provides participants limited supplement coverage to participants under the PCA insurance issued for the event. Please read the waivers and insurance documents for further information.

You will receive a wristband indicating that you have signed the waivers. Place it on your left wrist (not on your hat) and wear it the entire event.

There is a separate waiver for minors (ages 16 and 17). This form will be provided by the CCS staff at the event. It can also be downloaded from the LSR website, or from the official PCA website.

2.2 Speed Limits:

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

There is a maximum speed limit of **5 M.P.H.** when you are not executing a drill. There are participants outside their cars in various locations, and there will be other vehicles

moving around between exercises.

Please respect the posted driving laws and speed limits on your way to and from the event.

2.3 *Parking Areas*

Students shall park on the north side of the paved surface where their cars will be inspected prior to the event (see photo in Section 5). Back up to the edge of the concrete, in front of the yellow, orange, or white barriers. Leave a lane for vehicles to get to the shooting range. Unload any loose articles here. You may leave your items in this location until the end of the event.

There are several "no parking" areas at every event. Please heed marked spaces.

2.4 *Damage to the Facility*

Should you be involved in damage to facility property, you will be financially responsible for the repairs. This includes cleanup of oil spills.

2.5 *Minors and Visitors*

Minors are permitted with adult supervision. All spectators, including children, should stay in the grassy areas between the rectangular paved surface and the track or near the entrance, again on the grassy area. There are many moving vehicles during the event. Please monitor your children's activities and whereabouts at all times.

Visitors are allowed, but please be aware you will not have time to visit or interact with them during the event.

All visitors and minors must sign both waivers.

2.6 *Pets*

No pets are allowed.

2.7 Vehicle Preparation

2.7.1 Wheel Lug Nuts

Torque your wheel lug nuts before beginning your first event session. You should know the torque requirements for your vehicle in pound-feet. Determine these values before you get to the event by consulting your vehicle'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 likely have them and be glad to assist you.

2.7.2 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 vehicle to vehicle. If you are unsure of the required tire pressures, look on one of your door jams (every car has a sticker with tire pressures listed) or consult your owner's manual.

2.7.3 Fluid Levels

Check your fluids - and your vehicle's fluids, too! This includes oil, brake, steering, and transmission fluids. You personally should drink plenty of water during the event. One or two bottles in the morning and again in the afternoon is not excessive.

2.7.4 Fuel

Arrive at the event with a full tank of gas. No gas is available at the event site. **Fill up before you arrive!**

2.7.5 Loose Objects Inside Your Vehicle

Empty everything from the inside of your vehicle, 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 Velcro or clipped) to the floor.

Objects flying around inside your vehicle create an unsafe condition. They can jam under the pedals or cause an unnecessary and dangerous distraction while driving during the event. It is recommended you leave as much of this at home as possible. This will simplify your day by not leaving it in the grassy area during the event, and possibly leaving it on site upon your departure.

2.7.6 Loose Objects Outside Your Vehicle

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

3 LOGISTICS

3.1 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, input your prior event experiences and create mandatory "IN CASE OF EMERGENCY" contact forms ("ICE").

The Lone Star 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. Consult the Region's website for the relevant policies (www.lsrpca.com).

ALL PARTICIPANTS MUST APPLY ONLINE AT <http://www.ClubRegistration.net> AND PROVIDE PAYMENT WITH PAYPAL OR A CREDIT CARD. YOUR APPLICATION WILL BE ACCEPTED ONLY AFTER 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.

3.2 Cancellation Policy

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

We have the following cancellation policy relating to CCS participants:

Car Control School is a "Rain or Shine" event. This means the event will proceed regardless if it is raining. There are a lot of learning opportunities in the rain! We will halt or cancel the event if lightening is present (We utilize the Houston Police Academy standards for this call).

IF you cancel prior to 10 days before the event (prior to noon on Wednesday one week before the event) your monies will be refunded in full.

IF you cancel within 10 days before the event (after noon on Wednesday one week before the event) and we are unable to substitute another participant in your place prior to 5 days before the event, all funds will be forfeited by you.

IF you do not show up for the CCS event, all funds will be forfeited by you.

In the unusual situation where the CCS event is canceled, all participants will receive a full refund, or registration can be forwarded to the next scheduled CCS event.

3.3 In Case of Emergency (“ICE”)

Contact and Medical Information Forms

Each entrant in a CCS event must submit an Emergency Contact Information Form at the time of application on 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. Vehicle incidents are very rare, but general health issues are always possible.

3.4 Technical Inspections

Technical Inspections are expected to be performed by each student prior to arrival on the morning of the event. CCS Staff will conduct a check of the following items, and issue a “Tech Inspect” sticker upon acceptable conditions. Place the sticker on the upper driver’s side windshield.

Lone Star Region PCA Car Control School Technical Inspection Checklist Revised August 2008

- A) Older vehicles should be checked for structural integrity. Safety updates are encouraged on these vehicles.
- B) Each vehicle 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.
- D) Tires must be free of visible cracks. There must be a safe amount of tread rubber remaining on all four tires with no cords showing. Tires must not be under inflated. Tires should not rub the fender or wheel 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 vehicle 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 for the day.
- L) Throttle return springs shall return smoothly with no binding action.
- M) Adequate mufflers are required. Excessively loud vehicles will not be allowed. Noise pollution continues to be a problem for regions losing event facilities and utmost care should be taken to protect those sites.

3.5 Insurance

3.5.1 Vehicle Damage

Each entrant assumes all risk of damage to his vehicle during the event. This includes those times when an instructor may be driving your vehicle. Your regular automobile insurance may or may not provide coverage. It is your responsibility to ensure 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 vehicle. If you have any apprehension about your instructor's driving, please discuss this with your instructor, Team Leader and/or Chief Driving Instructor.

3.5.2 Medical Insurance

We provide secondary supplement medical insurance for all participants at our events through the PCA. In order to be eligible for this coverage, you need to be sure that you have signed PCA Waiver upon arrival to the event. At our events, there is a person at the front gate for check-in. When entering the event, there will be 2 waivers to be signed (see section 2.1).

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

3.6 Times & Places

The Car Control School events are held at the Houston Police Academy (HPA). Please check your event confirmation details about the start time of the event. In some cases we may decide to move-up the entire schedule by one hour to escape the heat (as much as possible).

3.6.1 Houston Police Academy

Houston Police Academy (HPA) is located on 17000 Aldine Westfield Rd, Houston, TX 77073, tel. (281) 230-2300.



Gates open at 7:00 am and we encourage you to be there on time. **However, do not enter the HPA property until the Gates Open! Early entry will incur additional fees from HPA.** If you arrive early, you may park across the street to wait for the gates to open. Upon arrival park on the left side (North) of the paved event surface and proceed to the registration tent where you will sign two waivers; one for HPA and one for PCA. You will receive a wristband and a sticker with your name and team assignment. Place the sticker on the windshield on the driver's side. You can leave your belongings behind your vehicle during the rest of the day, so you do not need to pack up your stuff when moving to the next drill. We will be serving coffee & donuts from 7:15am onwards.

Classroom starts at 7:45 am sharp and is mandatory for students!

Those students not present during the classroom session will not be allowed to participate in the event. No exceptions, no refunds.

3.7 CCS Handbook

Each new entrant should review this CCS Handbook in detail. If you have not reviewed the Handbook recently, copies may be downloaded from the files section of the current event on clubregistration.net. We also recommend you check out our webpage at www.LSRPCA.com/CCS.htm

3.8 Vehicle Numbers

Vehicle numbers are not required for the Car Control School. You will be assigned to a team (1, 2, 3 or 4).

3.9 Event Check-in

All participants, Students, Instructors and Volunteers will be asked to sign in when entering the facilities. To complete your event check-in you will need to:

- Sign the required waivers
- Put on the wristband provided
- Place the window sticker with your team assignment details in the upper driver side corner of your windshield
- Put on your name tag
- Get your vehicle tech inspected by one of the volunteers who will provide you with a colored dot as proof of passing tech.

3.10 Detailed Schedule (7:00AM – 4:15PM)

7:00 am	Gates open (Park in the Designated Area)
7:15 - 7:45	Registration and Technical Inspection
7:45 - 8:20	Classroom Instruction / General Meeting
8:30 - 9:15	Driving Session 1a
9:20 - 10:05	Driving Session 2a
10:10 - 10:55	Driving Session 3a
11:00 - 11:45	Driving Session 4a
11:45 - 12:30	Lunch provided by LSRPCA
11:45-12:15	Instructor Drive-Rides
12:40 - 1:25	Driving Session 1p
1:30 - 2:15	Driving Session 2p
2:20 - 3:05	Driving Session 3p
3:10 - 3:55	Driving Session 4p
4:00 - 4:15	All Student Meeting (Graduation, recap, questions)

4 VEHICLE AND DRIVER REQUIREMENTS

4.1 Prohibited Vehicles

LSRPCA reserves the right to prohibit any type of vehicle from its events. The currently prohibited vehicles include:

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

4.2 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 may utilize a standard 3-point seat belt. Any harness system must be accompanied with a HANS unit.

4.3 Clothing

4.3.1 What NOT TO wear, while in the vehicle:

Prohibited items include sandals, or shoes with open toes or open heels. Inappropriate shoes or boots will not be allowed.

4.3.2 What TO Wear:

Wear comfortable clothing appropriate for the weather. This is typically rubber-soled close-toed shoes, jeans or slacks, and a T-shirt or golf shirt. It is typically hot during the event, so hats and sunscreen are also highly recommended. We will have tents at each drill site to shelter us from the elements.

5 Car Control School Drills

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.

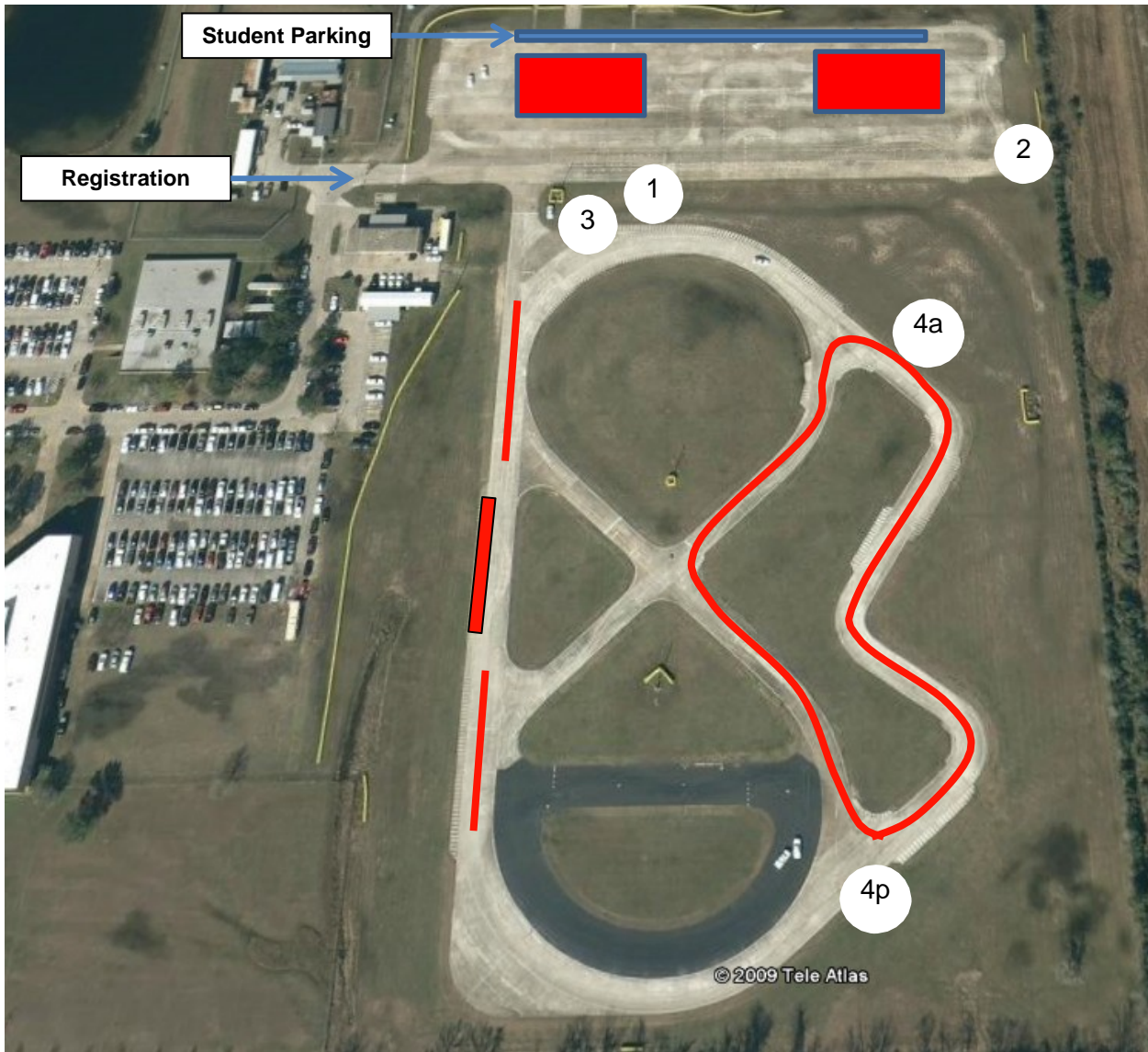
Your vehicle will get very dirty on during the event. There are wet pavement exercises, including a skid pad, which will be messy for your vehicles exterior. These wet pavement exercises allow us to reach the lessons at lower speeds and also reduce wear on tires. As with any soap product, it is recommended the vehicle exterior be rinsed with fresh water shortly after the event.

As you explore driving limits, you very well may spin the vehicle. 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 event surface, slowing as you go. On a road or event with a pronounced edge, it is important to drive straight across that edge to maintain control.

If you do spin:

- 1) **BOTH FEET IN AND STOP THE VEHICLE** – depress both the clutch and the brake (again, this applies to drivers with manual transmission vehicles; drivers in vehicles 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 vehicle 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 vehicle!
- 2) Watch the event volunteer for instruction. **DO NOT** go back onto the event surface until the event volunteer or your in-vehicle instructor has instructed you to do so.
- 3) Even after the event volunteer has signaled you to go back on the event surface, **MAKE SURE YOU CHECK TO SEE THE EVENT SURFACE IS CLEAR BEFORE YOU GET BACK ON**

We run 4 drills in the morning and 4 in the afternoon. This way we can accommodate 4 teams of 8-12 students each. Each drill will be assigned a (stationary) Drill Captain that will manage the exercise. Instructors, who will be rotating with their group of students throughout the day, will be the in-car instructors. We intend to have at least 3 instructors + 1 drill captain for a total of 4 instructors per team.



All drills are explained in the same paragraph-number as the number indicated next to each drill. The “A” and “P” indicate morning (A) or afternoon (P) drills

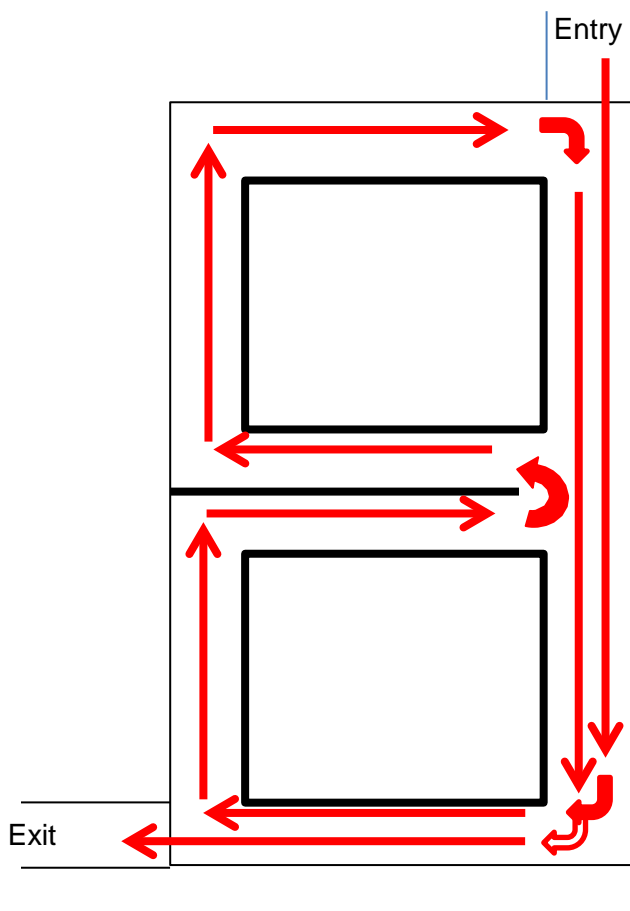
1A. Double Box

This layout is a double box design and consists of a large outer rectangle 210 by 100 feet. This layout consists of a lot of cones and is designed to be a “sea of cones.”

SAFETY FIRST – Ensure that the staging area is well clear of the course and keep non-participating students well back!!!

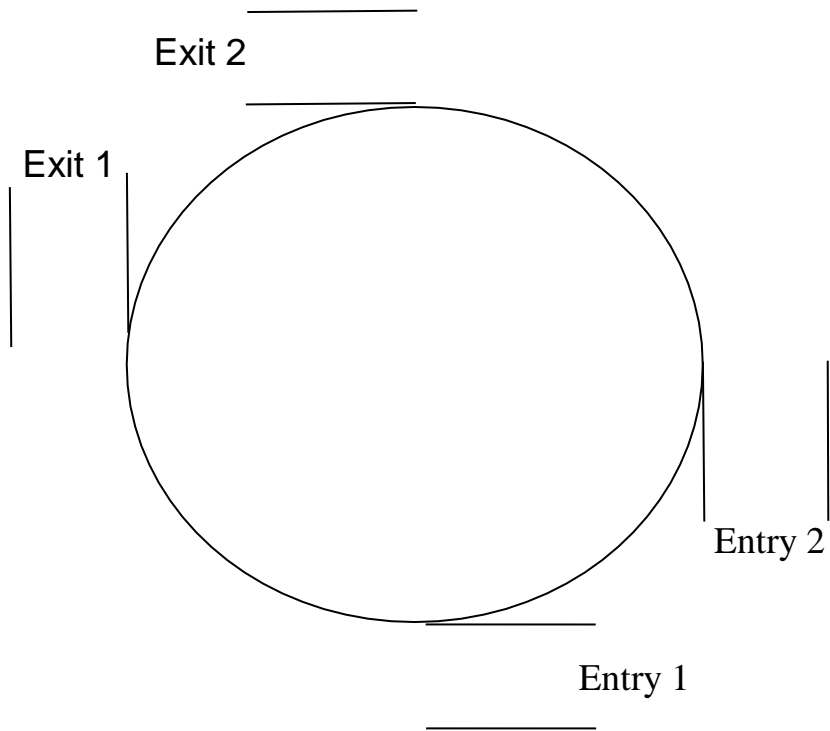
This drill is intended to be a little “busy” to simulate a busy street scene. It is also designed to get the students to look ahead two or three turns. This is NOT A SPEED DRILL. Take 2 laps at a time emphasizing “looking ahead” all the time, looking 2-3 turns ahead. Work on proper, smooth turns and keep the speeds low here to really work on smooth steering and gas inputs. Minimal braking is required if the exercise is performed correctly.

STREET RELEVANCE – A safe driver is one that always looks ahead and anticipates. This exercise introduces the concept of looking ahead and putting your vision where you want the vehicle to go. Secondly it teaches a controlled hand position on the steering wheel (shuffling vs. hand-over-hand)



2A. Wet Skid Pad

The Skid Pad inner circle diameter is 75 feet. Use cones to create the circle. The circle will be sprayed with a soapy-water solution a couple of times during each drill session to make the road surface slippery.



SAFETY FIRST – Keep the staged vehicles well back of the skid pad to avoid a collision in the event of a skid!!!!

The purpose of this drill is to learn throttle steering in an understeer situation by using slight weight transfer to the front of the vehicle by lifting off the throttle and weight transfer to the rear of the vehicle by pressing on the throttle. During the first run the instructor should gradually get the student near the limits of traction, maintaining a steady throttle until you both feel the front wheels beginning to “slip.” On subsequent runs again use 5 laps but get the vehicle up to the limits of traction quickly so the student can experience understeer by gradually changing the amount of pressure on the gas pedal. Warn the student ahead of time that the vehicle may spin but that is perfectly OK and VERY instructive. On subsequent runs allow the student to control the vehicle using the throttle only – no steering! Be sure to mix the direction of the runs to teach the student to control turns in both directions.

Advanced technique: After establishing constant speed in the circle, instructor can hold steering wheel in one place. Student will then control circle diameter with throttle only.

STREET RELEVANCE – On the street you will sometimes experience understeer. This exercise will help you recognize it and know how to comfortably correct it.

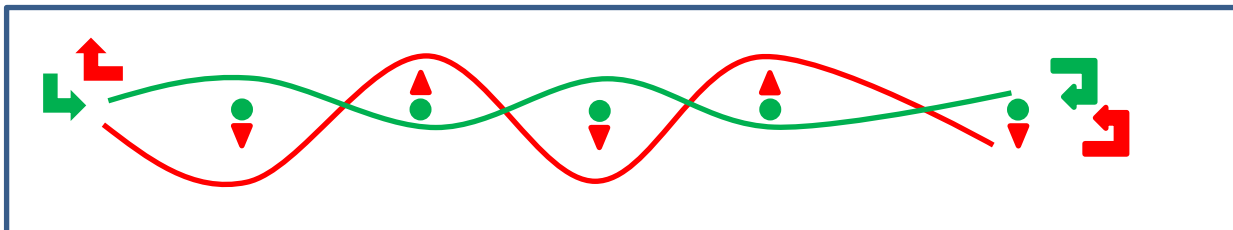
3A. Slalom

The slalom course is designed to teach smooth weight transfer from side to side without upsetting the vehicle.

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. Work on smooth, constant application of throttle. Teach the student to look ahead and turn **BEFORE** the vehicle reaches the cone to allow time for both human and vehicle reaction time. **SLOW DOWN** to pit speed upon exit of the drill.

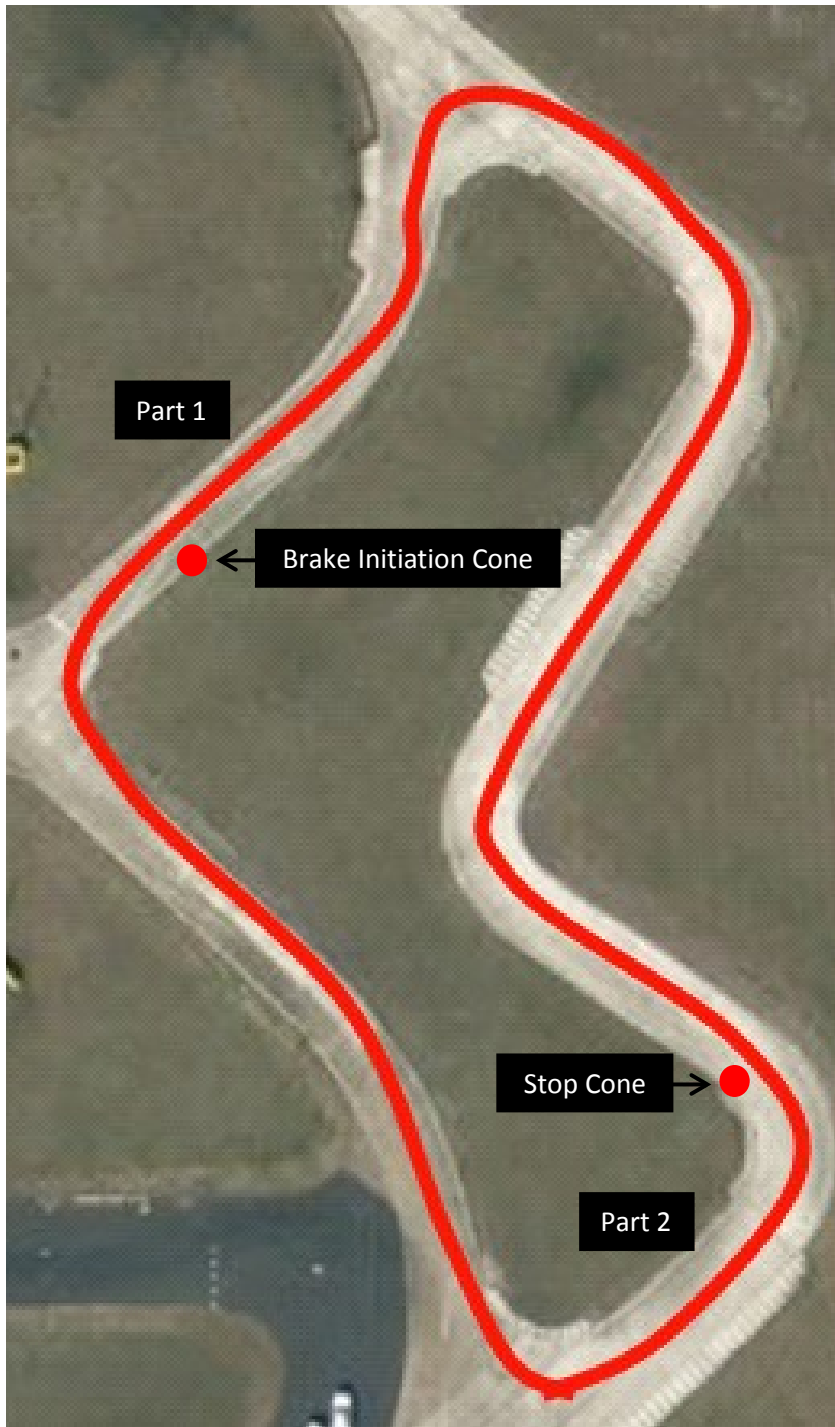
The slalom course is made up of ten to twelve cones. Half the cones are placed in a straight line and the other half are set “offset” as shown below. Students need to drive the “backside” of the cone; i.e., if turning left past a cone, the vehicle should cross the slalom centerline pointed towards the left side. The first run should be the “easy way” (**green** line) in both directions. The second run should be the “hard way” (**red** line) in both directions to emphasize looking ahead at least two cones to make the vehicle flow, transferring weight back and forth without upsetting the vehicle.

Students will circle the end cone and return in the opposite direction. The staging and entry area should be well back of the course.



STREET RELEVANCE – Similar to the Accident Avoidance Drill, this teaches you how to conduct quick lane changes and keep the vehicle balanced, with smooth suspension weight transfer.

4A. Threshold Braking



The Threshold Braking drill is performed in two parts.

The first part has the student experiencing their ABS braking system. (**NOTE:** If they don't have ABS, they must modulate the brake pedal so the wheels don't lock up and flat-spot the tires.) The student accelerates briskly to the Brake Initiation Cone then applies full brake (pedal to the floor) until the vehicle comes to a complete stop. The ABS system will activate!

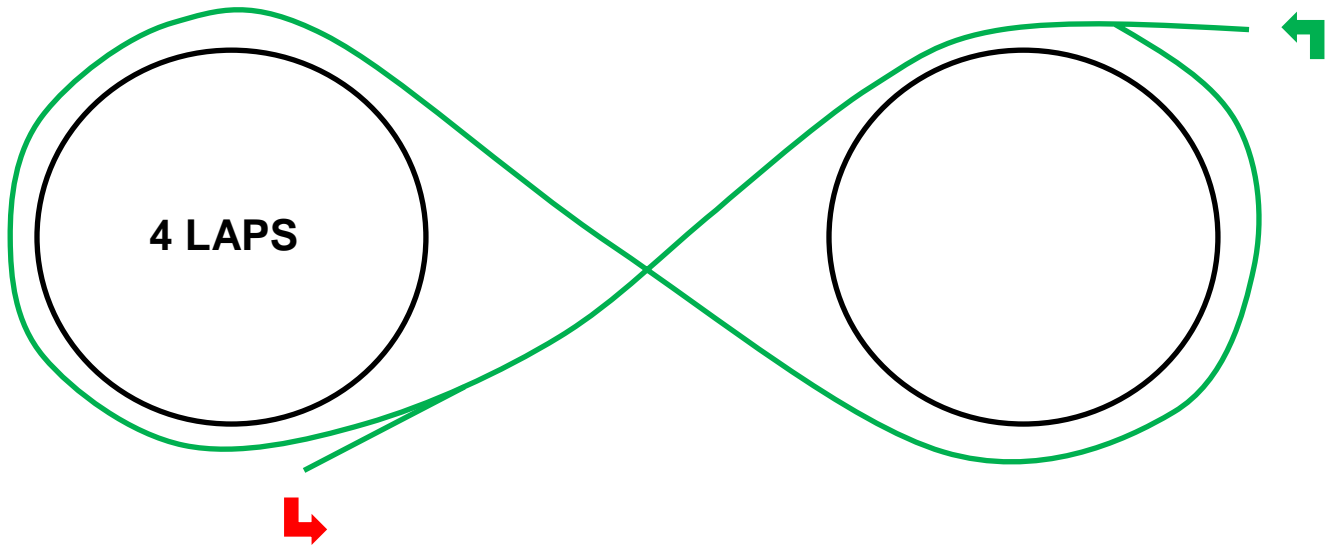
The second part has the student experiencing braking while turning. The student accelerates briskly to the Turning Zone applying maximum braking as late as possible to stop the vehicle at the stop cone.

SAFETY FIRST – Keep the staging area well clear of the course and insure the student slows well before the exit!!!! Cycle through the two exercises as time permits.

STREET RELEVANCE – Brakes are very important to safe driving. Students may have to stop quickly while avoiding something in the road. It's better to experience the feel of the vehicle in a safe environment prior to an incident on the streets. "Helping students avoid accidents before they happen!"

1P. Figure Eight

Purpose of the drill is to experience weight transfer and looking ahead. Students will drive 4 laps around the figure eight using smooth inputs (Brake, Turn, Gas) at each end while looking ahead. When the student comes to each circle, the turn should be initiated and the driver's eyes should immediately look to the other side of the circle. Corner entry speed and smooth weight transfer are very important.

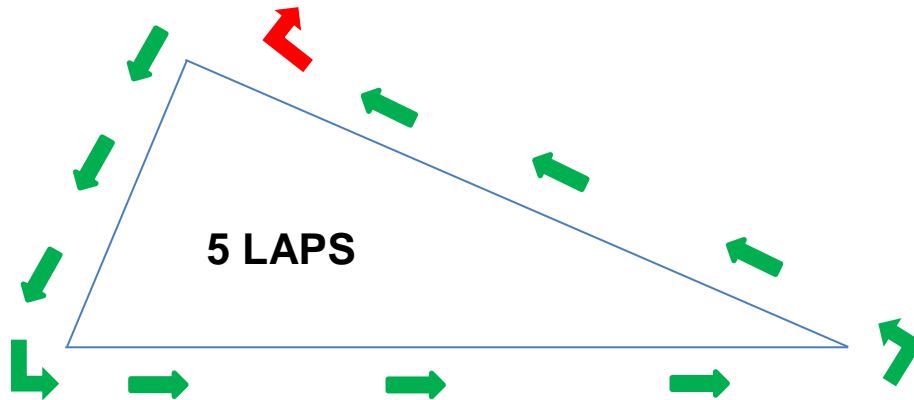


SAFETY FIRST - Keep the staged vehicles well back of the course and keep students within their capabilities!!

STREET RELEVANCE – Students must learn how to smoothly control their vehicles while looking ahead and anticipating what is coming up. Virtually every time someone drives their vehicle, they will need the skills taught in this exercise. This exercise builds driver confidence and helps the driver to identify individual vehicle characteristics. How does my vehicle behave through a turn under acceleration and deceleration (When lifting off the throttle or when braking)?

2P. Triangle

The triangle should be set up to have one sharp turn and two less sharp turns. Students should drive the course counter clockwise at a brisk pace. Accelerate along the straights, straight-line brake, turn, gas around each corner. If oversteer occurs, countersteer and continue to apply gas gently. Students should drive 5 laps and return to the queue.



SAFETY FIRST - Keep the staged vehicles well back of the exercise area to avoid a collision in the event of a skid!!!!

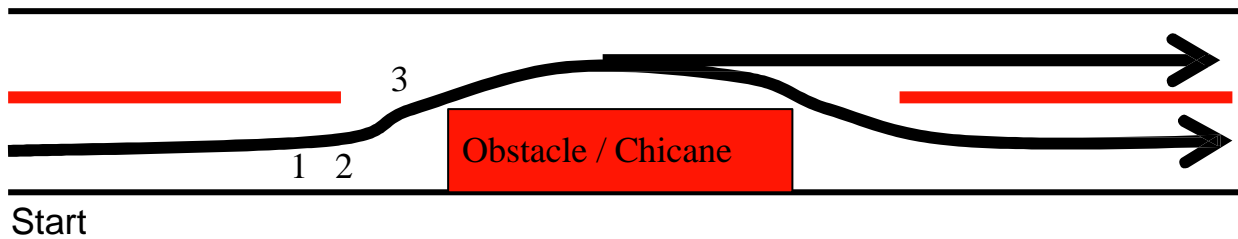
The purpose of this drill is to teach the students how their vehicle reacts to different radius turns and how they can slow down to counteract a smaller radius turn. This drill contains differing radius turns which will challenge students to use weight transfer to counteract both oversteer and understeer.

STREET RELEVANCE – In daily driving you may experience many differing radius turns (e.g., country roads, turning in driveways, avoiding obstacles). This exercise teaches you to look ahead and properly control corner entry speed, as well as how to maintain control of your vehicle in these situations.

3P. Crash Avoidance

The goal is to teach crash avoidance through car control rather than panic braking. There are three car control actions at work here: the initial lift, the turn in, and re-applying throttle to get the vehicle straight in the new lane. There is always the possibility of an oversteer or understeer correction.

Driving lanes should be long enough to establish steady state cruise between 30-40 mph, or approximately 250 ft. Obstacle should be approximate length of tractor-trailer, or approximately 70 ft. The distance between the lane marking cones and the corner of the obstacle should be 40 ft from both corners.



1. Lift – to transfer weight to front tires
2. Turn – to avoid accident and change lanes
3. Squeeze – back on the gas to plant rear end and continue with the flow of traffic

SMOOTH INPUTS RESULT IN FLUID MOTION

Repeat the exercise going in the other direction and then return to the queue.

SAFETY FIRST - Keep the staged vehicles well back of the course and keep students within their capabilities!! Drill is designed to teach correct sequence of driver inputs to avoid loss of control or oversteer at high speeds. By first lifting off of the gas, weight is transferred to the front tires. Since this is done in a straight line, the vehicle will continue in a straight line, and the driver will remain in control. Slow to pit speed upon drill exit!

STREET RELEVANCE – How many times a day do people slam on their brakes right in front of you? This exercise teaches you to react in a manner to actually avoid an accident instead of becoming a statistic.

4P. Apex



This course is set up around the eastern part of the HPA track.

SAFETY FIRST – Keep the staging area well clear of the course and ensure 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 the square corners a late apex should be selected, place an apex cone for the student's reference. For the sharp turns a very, very late apex is called for. Students should learn to stay wide entering into turns especially on the sharp turns. The students will make 4-6 runs through the course.

STREET RELEVANCE – Students need to know how to handle their vehicle when driving around corners whether it be on a country road or the corner down the block. Vehicles should be kept in control at all times.

6 What to Bring With You to the CCS Event

For the Driver:	For the Vehicle:
Hat & Sun Block	Window Cleaner
Lawn Chair	Paper Towels / Rags
Snacks (Lunch is Provided)	Tire Pressure Gage
Duffle bag / Tarp for your trunk items in case of rain	

Pre Run Session Checklist

Set Goals for the Session, then ...	
Before Entering the Vehicle	In the Vehicle
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
	Take a deep breath and relax