Twenty Years of DE Excellence

FLORIDA CITRUS REGION PCA

Driver Education Program

Classroom Course Material

Roebling Road Raceway
Bloomingdale, GA 31302

Classroom Course Material

Welcome to our Driver Education event

Who are we?

- You are attending a Florida Citrus Region PCA hosted Driver Education event
- The event is attended by mostly PCA club members but also many guests
- Event held under direction of PCA National guidelines
- Event is insured the PCA National's insurance policy. You must sign the waiver to participate in this event.
- Event run under the rules & procedures of the Florida Citrus Region
- David Borinski – Driver Education Chairperson
- Barbara Barnes – Registrar
- Kevin Duffy – Steward of the Meet
- Tom King – Chief Driving Instructor
- Ron Zitza – Director of Instructor Training
- Ron Brannom & Tom King – Classroom Instructors
- Kevin Duffy – Safety Chair
- Luis Caban & Matt Smith – Technical Inspection
- 40 some volunteer instructors – In Car Instructors
- PCA members are not paid; all proceeds go to the PCA Florida Citrus Region
    - For their time and effort the above staff members are given an entry to the event. In addition, the Chair, Registrar, SOM and CDI and DIT have their room expense covered for the weekend.
- Professional corner marshals and emergency staff.

The Facility: Roebling Road Raceway

- 2.02 miles, owned and maintained by the Buccaneer Region of the SCCA
- Tech/garage area, first aid area, restrooms, lunch area, race gas
- Quiet time 8:00pm to 8:00am every day, Sunday 11:00am – 12 noon – STRICTLY ENFORCED
- Sound restrictions are in place, your car must be below 103.9db
- 5mph speed limit in paddock area – STRICTLY ENFORCED
- Pets must be on a leash
- No children allowed in the tech shed/pit row areas
- Fluid Disposal areas provided
- Used tires & other materials must be taken with you at the completion of the event.

Driving and conduct rules outside the track

- Entry/exits to the track are residential, obey posted speed zones, keep noise down and obey all traffic laws.
- Pooler has a reputation of having a well-funded police department and they know when an event in town.

Setting expectations

- **We are not here to race**, we are here to learn mechanical principles and driving techniques that will allow us to better understand our own car and safely drive our car closer to its limits and our own. We are here to have FUN. This is Driver Ed.
- **Please be prompt** to all driver's meetings, classroom and track sessions.

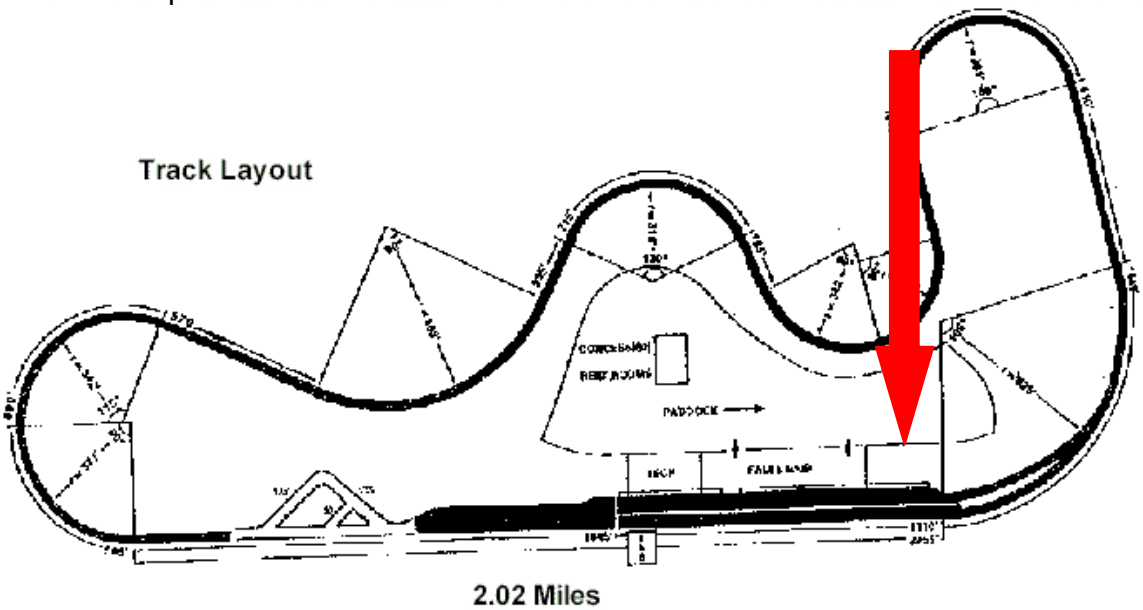
Driving and conduct rules inside the track

- Your assigned instructor is in charge of the car even though you are at the controls of the car.
- Comply with the officials' commands immediately and if necessary, discuss later.
- Passing zones and passing signals are the key element in keeping this event safe and FUN. Know the passing zones for your group.

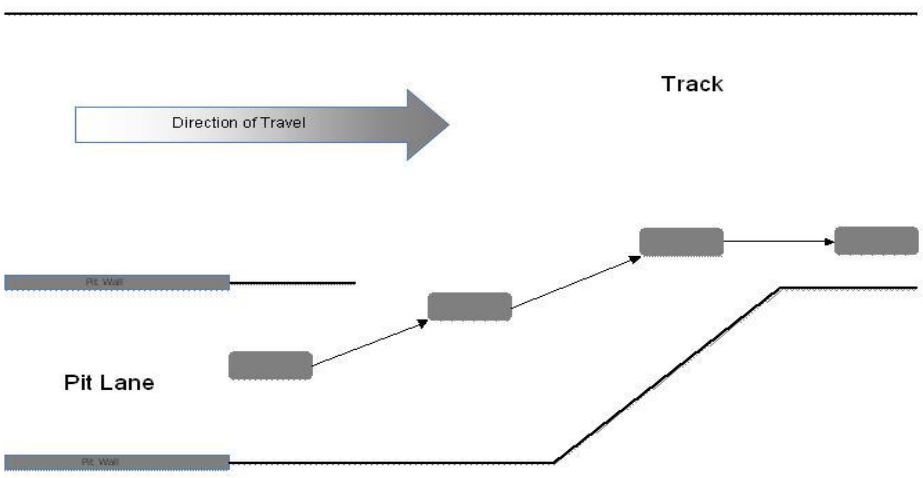
PART ONE – BASIC UNDERSTANDING OF DRIVER EDUCATION ESSENTIALS

How driving sessions work

- Each student will be paired with a qualified volunteer instructor. You will not be permitted to drive without an instructor until he/she recommends to the Chief Driving Instructor (CDI) that you be permitted to drive solo and the CDI agrees with the recommendation. A different instructor, assigned by the SOM or CDI, will then give you a check out ride before being given solo status with the Citrus Region. Note: In order to achieve solo status, a student must be able to effectively use the heal and toe technique.
- Each session will be called to the grid by the session color. To get to the grid, drive slowly in the paddock area to the false grid entrance (see arrow). Your instructor will meet you there if you have not met up earlier. Form a line and wait to be signaled out onto pit lane.



- When your session begins your car will be released to the pit lane, the starter will release each car one at a time onto the track (spacing each car out).
- When the starter signals you onto the track, accelerate briskly, stay to the right, and enter turn one on the right after exiting the pits. This is the only time you will enter turn one on the right.



- Each session is approximately 20 minutes. The checkered flag signals the session is over. After taking the checker flag, use the remainder of the lap as a cool down lap. After rounding turn 7 put your fist out the window (the signal for entering the pits) check your mirrors and move to the right when clear to enter pit lane. After exiting the track and entering pit lane, slow down and remember the 5mph speed limit after you exit pit lane into the paddock area.
- DO NOT USE THE EMERGENCY BRAKE AFTER PARKING. The concentrated heat from the brake pads can warp the rotors.
- Use this time to discuss the session with your instructor. After each session, you and your instructor should update your log book. The book will be used to determine which group you will be assigned to in the future and assist another instructor in case a re-assignment is needed before the end of the event.

Safety Rules

- Just like a public road, there are rules for the track to insure your safety.

- **Flag stations** are for your safety - they control the track.
  Note where each manned flag station is; learn to take a quick glance as you enter that location. The flag workers have track radios and will warn you of situations not only at that corner, but of the following corners as well.

- **Flag definitions**:
  - Green – Start/restart of session
  - No flag – track is open
  - Stationary Yellow – Caution, slow down, off track problem, no passing.
  - Waving Yellow – Caution, slow down, unsafe track condition, no passing, prepare to stop if needed.
  - Yellow & Red Stripped – Caution, slow down, slippery track surface, oil, dirt, car parts – etc.
  - Red – Stop driving, track is blocked; pull to the side of the track as soon as safely possible within site of the next flag station.
  - White – Slow moving emergency vehicle on the track

- Black – Pull into the pit lane your next chance. If it is for a specific car that car number will also be displayed. Cars should report to the track steward for consultation.
- Blue – A faster car is approaching, check your mirrors, let it pass in the next passing zone.
- Checkered – Session is complete, no passing, cool down lap, enter the pits at the next opportunity.

- **Passing Rules**
  - **Passing is highly controlled for the safety of all involved**. The rules regarding passing are strictly enforced. Anyone choosing not to adhere to the rules will be removed from the event.
  - Green/Blue groups – **ALL Passing is done on the FRONT STRAIGHT (9 to 1).**
  - **The lead car always stays to the left**. All passing will be done on the right.
  - **Pass only when the driver in front of you acknowledges that they see you and gives you a passing signal** (left hand out the window, pointing over the roof to the right).
  - If there is a line of cars waiting to pass**, each car in line is to receive a separate pass signal** before a pass can be started.
  - **The pass must be completed and your car back in line on the left side of the track before the brake markers at turn 1**. A late pass signal is not an excuse. The burden of passing is on the car that is doing the passing, not the lead car.
  - **No drag racing**. If a car is in your mirror at the exit of turn 9 they are faster. Give a passing signal and gently lift out of the throttle to let the other car pass.
  - If you are repeatedly held up by a car, get the car # and report it to a track official so they can talk to the driver.
  - You always have the option of pulling into the pit lane to remove yourself from heavy traffic. The track out person will send you right out, you will not loose track time.

- **Clothing**
  - **Long sleeve shirt & long pants** (cotton or non-flammable material), leather or canvas shoes and an approved **Snell rated helmet**.

In-Car instruction – what to expect as a driver

- **This school is a very hands-on experience**. Because you are driving your own car, it is very affordable and all the knowledge you gain is directly applicable to you and your car after you return home.
- You will have to **build a trust and relationship with your instructor** to get the most out of this weekend. They are here to help you drive fast and safe.
- **If either the student or the instructor is uncomfortable with the speed or the handling of the car, it should be discussed off track**, in pit lane or the paddock area. Most conversations are lost while done on the track. Both parties should be comfortable with what is being asked or expected from each other.
- **Most instructors will use a combination of hand signals and voice commands**. It is your responsibility to discuss these commands before you enter the track.
  - Be sure you understand your instructors hand and/or verbal commands such as : Brake, accelerate, move to the left, move to the right, turn in, check your mirror, pull into the pits, pass, etc…

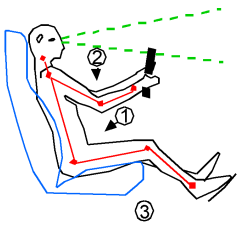
- **You may be in the driver seat, but the instructor is in control of the car. Even if you don't understand why the instructor gave you a set of instructions, DO IT. If you are unsure why you were asked to do it, do not debate it while on the track or attempt to have a discussion, pull into the pit lane and discuss the event there.**
- You need to make every effort to trust and get along with your assigned instructor. It is nearly impossible to re-assign students mid way in the weekend. If there is clearly a problem that is not going to get ironed out between the two of you, please see the SOM. The SOM will decide the appropriate coarse of action.
- If your instructor says **"BOTH FEET IN!"** you are being asked to immediately fully depress both the clutch and brake pedals at the same time. Timing is critical and your instructor is trying to save you and your car from having an impact with another car or a wall. By using the clutch and brake, you insure the direction that your car will go and you will minimize any damage to your running gear.

In-Car instruction - you as a passenger

- As part of your education, **you are encouraged to ride with any active instructor** that weekend.
- As you ride, **take mental notes**; watch your instructor's pedal and wheel movements. Observe how he/she reacts to circumstances (traffic, flags, etc.) Did you feel the car rotate or slide in or out of a corner? Did he/she heel/toe or double clutch?
- **After the ride ask questions**. Why did you enter turn two that way? Why did you tap the brake before the real braking zone of turn 1?
- **Each driver and car is unique**. You can learn from each of them (good and bad!). What you should take away from the experience is that there are many ways to approach the same corner. Which fits your car and your comfort level this weekend? There is a different line and technique involved in driving a 911 verses a 914. Tires, brakes, suspension, HP, car weight and driver ability all factor into it.
- **Don't expect to apply all this new found knowledge your next session.**

Ergonomics and driving posture

- Turn off the radio/CD/MP3 player, A/C, close the sunroof, and make sure both windows are down.



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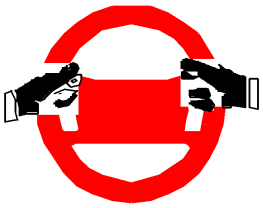
1. **Sit "In" the Seat, not on it.** Push yourself back into the seat by pressing your left foot against the "dead pedal". This will assist you staying in the seat during heavy cornering. You will feel the car react often before you will see it. [i]
2. **Adjust the seat so the heel of your hands can at least rest on top of the steering wheel** without completely having to outstretch your arms. You should be able to reach all gears (check 5th and or 6th!). Check to make sure your have good visibility to your gauges.

3. Finally, **make sure that you can easily fully depress all pedals** without interference of the steering wheel or having to overextend your leg's reach. You'll need to have your knees slightly bent. Your final seat setting should never force you to fully extend your arms or legs. You should be able to brace yourself on the dead pedal to minimize using the steering wheel when cornering.
4. If you have a racing harness, tighten it as much as possible.

- **Head, Hands and Feet**
  - **Keep your head/eyes up**, on the horizon. Looking at the ground or the end of your hood will not allow you to prepare/react for your next action, be it braking, turn in, steering correction etc.. Looking at the horizon will increase you awareness of surroundings, and minimize the sensation of speed. When your driving speed increases, keeping your eyes up will allow you to recognize when your car has begun to rotate and allow you to correct and not over/under react.
  - **Steering wheel hand position should be close to 10 and 2 or 3 and 9.**



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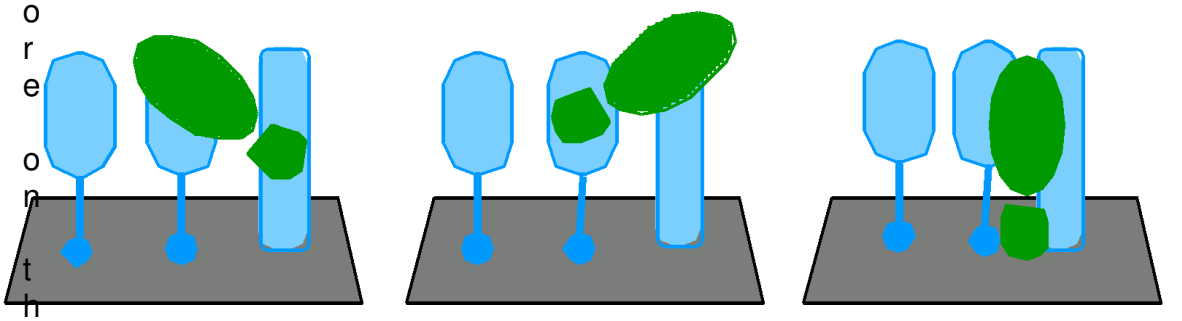
  - **Use two hands**; do not rest your elbows on the door or center console.
  - **Do not use a death grip** on the wheel. If your grip will not allow you to wiggle your fingers or flex your wrists, you are holding on too tight. Relax.
  - **Curl your fingers around the wheel**, not the palm of your hand. Palms are far less sensitive than your fingers. [ii] Place your thumbs on the wheel, not around it (if you go off road, the car wheels may snap around and thus ripping the steering wheel from your hands and breaking your thumb(s)).
  - **Use Shuffle steering technique**. As you turn the wheel, slide your hands back down to the 10 and 2 position. This allows you to consistently keep leverage on the wheel and allows limitless motion.
  - **Pedal/Foot location.** Your pedals should be close enough together to allow you to heel-and-toe. You may need to make changes to get the pedals more on the same plane of height or add after market pedals to get the side to side spacing to allow you to do this. Having the pedals as illustrated will allow you to heel-and-toe or double clutch. Both techniques will allow you to transition from one speed to a lower speed, by using the brakes to slow the car and at the same time change gears so the motor and transmission are both spinning at about the same speed before engaging the clutch. If this is not done, the driving wheels of the car will



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want to momentarily skid. This causes you to loose traction at a critical moment and is very bad for your transmission and engine.

- The heel-and-toe sequence

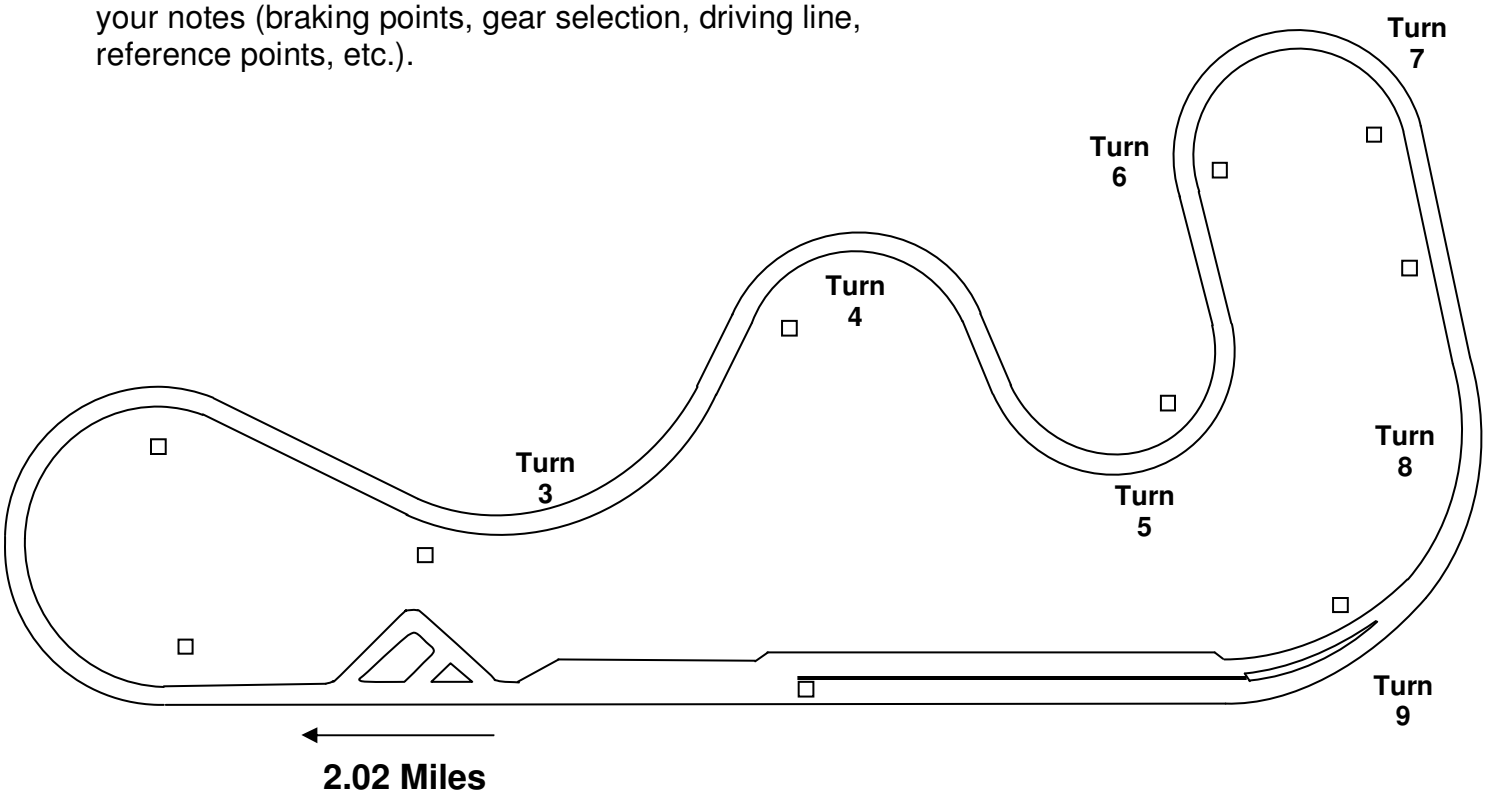
1. At your braking point with your right foot, depress the brake pedal
2. Prepare to down shift by engaging the clutch pedal with your left foot
3. Down shift (with clutch depressed and during the braking sequence)
4. Blip the throttle with your right foot (while braking with the same foot)
5. Release the clutch.
6. Repeat steps 2 through 5 for each downshift
7. Release the brake.

- The double clutch sequence

1. At your braking point with your right foot, depress the brake pedal
2. Prepare to down shift by engaging the clutch pedal with your left foot
3. Disengage the gear into the neutral gate
4. Disengage the clutch
5. Blip the throttle with your right foot (while braking with the same foot)
6. Engage the clutch
7. Down shift (with clutch depressed and during the braking sequence)
8. Engage the clutch

End of 1st Class Session, go and prepare to go out on track with your assigned instructor. Take your car and helmet to the false grid as you hear your group being paged over the intercom.

After your session, use the following track diagram to document your notes (braking points, gear selection, driving line, reference points, etc.).

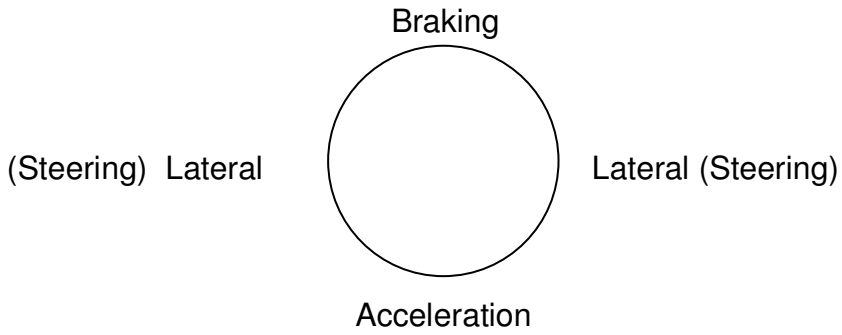


PART TWO – BASIC UNDERSTANDING OF DRIVING or PHYSICS 101

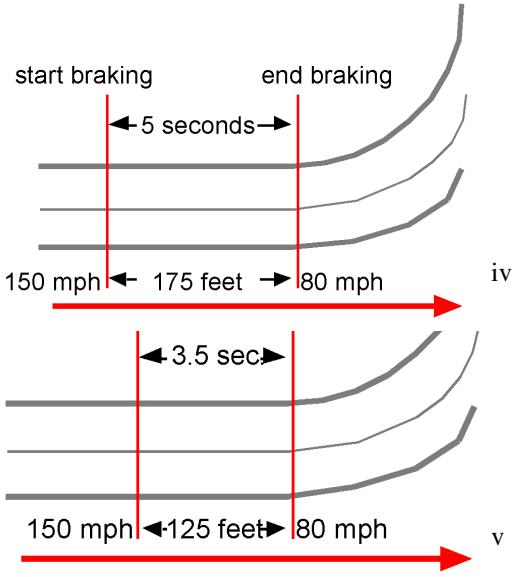
Assumption: A car is only capable of giving 100% at any given moment. Each car will have its own definition of what 100% is based on tires, brakes, suspension, HP, car weight, road surface… at a given moment. A car is capable of performing less than 100%.

99.9% of your street driving occurs within the car's limits (less than100%). You can turn and brake at the same time; you can turn and accelerate at the same time. If you exceed those limits on the street, you might spin or skid the tires. If either of these conditions occurs, an accident may occur as a result. As a car reaches closer to its full limits, braking, turning and acceleration must be done with the right amount and in the correct sequence or those limits that cause tire spin or skid will be exceeded.

We are here this weekend to explore those limits, recognize those limits, and take corrective actions when those limits have been exceeded. Below is a representation of the "Friction Circle".



- Braking (Deceleration), typically measured in feet required to stop from 60mph.
  - $E=\frac{1}{2}m*v^2$. This means as speed increases the amount of energy required to stop, or the amount of kinetic energy built up, squares.
  - A car can stop faster than it can accelerate. Improper use of the brakes will therefore cost you more time than improper use of acceleration.
  - It is typically cheaper to improve braking verses acceleration (brake pads, rotors, tires verses significant HP gain, weight reduction)
  - If you can shorten the braking distance it takes to reduce speed, you save time.



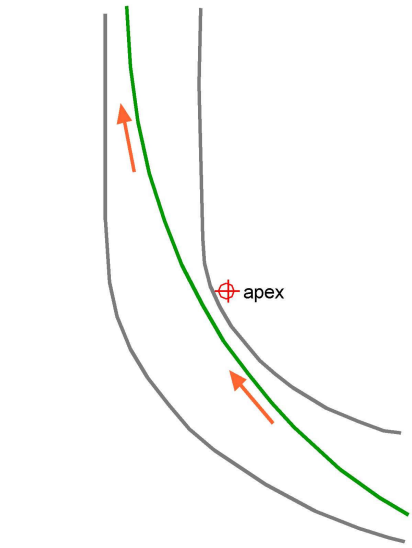
- Braking should be done in a straight line so maximum brakes can be applied. You cannot brake as hard in a corner as you can in a straight line because of the laws of physics. In a corner weight is shifted side to side, for 100% braking you need maximum weight on both front wheels.
- As brakes are applied, weight is transferred from the back of the car to the front of the car. If the brakes are slammed/jabbed on before the weight of the car has begun to transfer, the front wheels may skid. Skidding is not the most effective way of slowing a car. You loose the capability of steering, and the coefficient of friction is reduced. That is why modern cars are usually equipped with ABS. If you are driving an older car without ABS, you may have to manually modulate the brakes pedal to accomplish this same thing (except your foot can't do it hundreds of times a second)
- The most efficient use of the brakes is to firmly squeeze the brake pedal and as you feel the weight transfer apply more and more brake until you find the threshold for your car (i.e. 100% of possible deceleration, just before the tires skid). If the ABS kicks in, this is a good thing, keep the pedal firmly depressed so that ABS can work for you.

- Throttle (Acceleration), typically measured in the time it takes to drive ¼ mile.
  - Just as threshold braking (100%) should be done in a straight line, so should full throttle. Too much throttle, too quickly will result in the driving tires spinning. If the tires are spinning, you are accelerating at less than 100%. If you are not in a straight line when the tires spin, the car will not maintain the arc that was established before the spinning occurred.
  - Roll the throttle on. Do not stab or jam it. Be deliberate. Like brakes, if the tires begin to loose grip, modulate the throttle lightly until the wheels establish traction.
  - As you accelerate, weight is shifted to the rear of the car. As more weight is shifted to the rear (on a rear drive car) the car has more traction and can accelerate quicker.

- Steering (Lateral), typically measured in G Force.
  - Just as with the brakes, sudden input to the steering of the car will cause loss of traction at the wheels. To maximize the G force a car is capable of doing, the suspension must first be put into what is called a "set". This occurs when the suspension of the car is loaded (springs/shocks/sway bars compressed, tire sidewalls flexed) in the direction that needs to be taken. Application of "control throttle" will help set the car. After braking add just a small amount of throttle during turn in and hold it (know as control throttle). Then, gently (with smooth movements of the steering wheel) enter the corner. When done properly you will feel the car "take a set". It is only now that the car is really ready to work.
  - Lateral G force will shift weight side to side on the car. You feel the car lean. Thus the outside wheels will carry a significant percentage of the car's weight under heavy cornering. This is why braking and cornering are not a good mix until driver skills are ready to overlap these inputs (because too much weight will end up on the outside front wheel leaving the inside rear wheel nearly weightless; result spin).

- To maximize the speed your car can navigate a corner, you must minimize the G force your car will generate during the corner. One rule of thumb is you need to straighten the corner as much as possible by taking the largest radius possible. This involves setting up a corner as far on one side of the track, opposite the turn as possible, driving through the tightest section of the curve at the half point of the arc (apex) and letting the car track out to the outside of the turn's exit. However, while this is generally true there are exceptions. For example, there is no track out for turn three at Roebling. In this turn you generally follow the radius of the corner. Like most sports there is a lot to learn about driving. As you progress you might find that the fastest way around a corner is not the widest possible arc and will depend on the topography of a corner and the next corner to it. There is always something to learn.
- There are three major components associated with navigating a corner:
  1. **Turn In** (moment and location of where you begin the corner)
  2. **Apex** (the point where the largest radius touches the inside of the turn)
  3. **Track Out** (moment and location where the corner is complete and steering is unwound)

Track Out



Turn In

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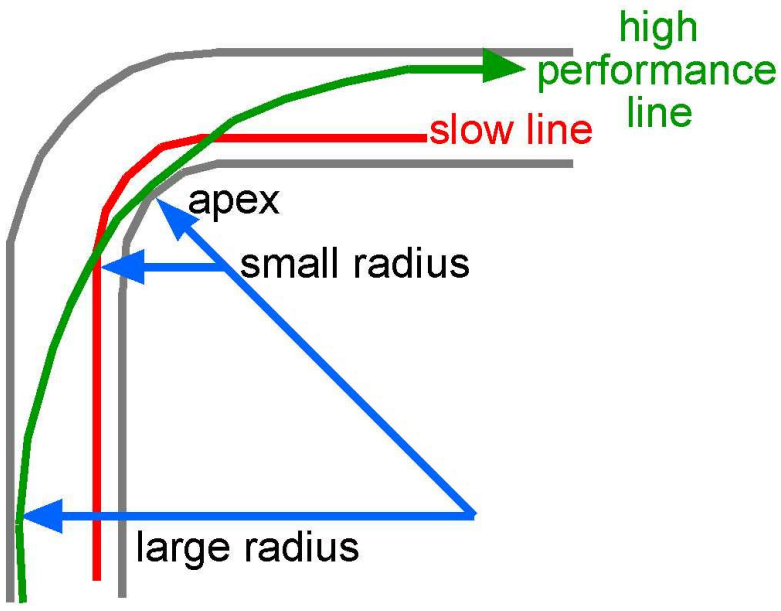

- **Cause and effect:**
  - Early apex leads to an early exit (track out) – Risky if there is little runoff space. This is most often caused by an early turn in or entering a corner with too much speed). Remember, early in, early out.
  - Late apex leads to a late exit (track out) – Safe if there is little runoff space. This is caused by a late turn in, but results in a longer straight away into the next corner. Entry speed is usually given up (slow in – fast out).
  - Corrections in the middle of the corner will upset the car (steering/brakes...)
  - After turn in, if a constant radius and speed can be maintained until the apex is reached, a smooth/fast corner can be achieved.

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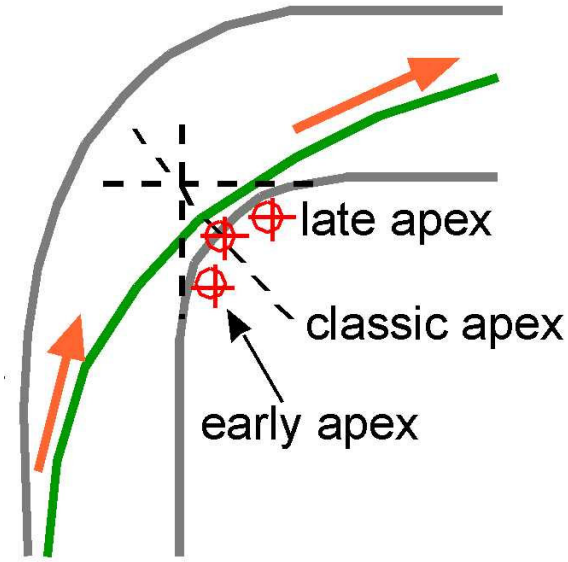

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- We will use cones this weekend to assist you in finding turn in, apex and track out locations. The cones are there ONLY FOR REFERENCE. Your instructor may ask you to be to the left or right of a given cone based on your car's capability. Your next lap that cone may have been moved or removed by one of your colleagues. Do not drive cone to cone. As you progress try to use fixed locations that will not move or change as reference points (trees, discolored pavement, bumps, etc.)
- One corner will often affect the next one if it is done poorly or if it is done better than ever before. If you early or late apex you may not be in the right location to begin the next corner's turn in. If you exit the first corner 5 mph faster than ever before, you will enter the next corner 5 mpg faster, braking and turning locations may have to be adjusted.

Exceeding the limits of your car (while remaining in control!)

- **Cause:** Rear wheels have more traction than the front wheels when cornering.

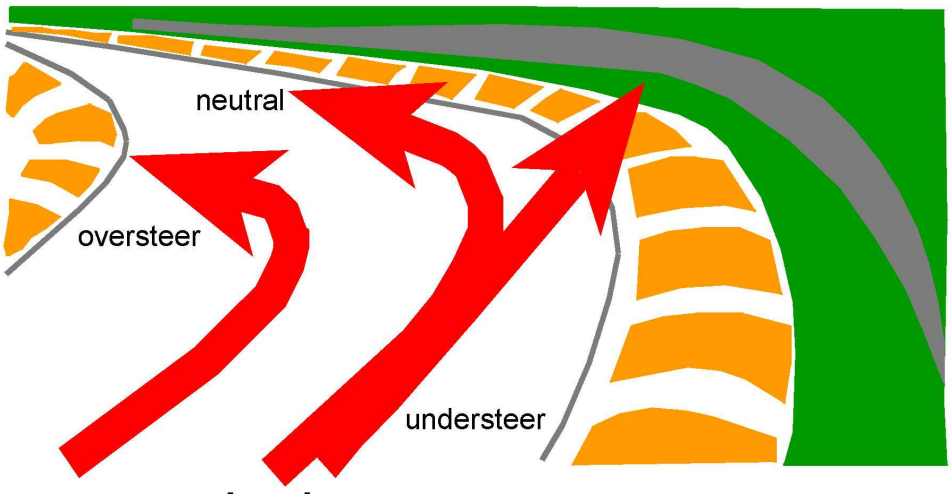
- **Effect:** The front wheels loose traction and the car experiences **UNDERSTEER or PUSH**. When this happens the front wheels slide rather than steer the car. The car wants to drive straight rather than corner.

- **Correction:** Try adding a little more steering input. Apply a little more weight to the front of the car by gently lifting from the throttle (all that is required is a tiny movement of your foot, 1/16" or 1/8" is all it takes). By gently lifting from the throttle the car will naturally slow down a bit and give the front wheels a chance to regain their traction.

- **Cause:** Front wheels have more traction than the rear wheels when cornering.

- **Effect:** The rear wheels loose traction and the car experiences **OVERSTEER or LOOSE**. When this happens the rear wheels slide or spin (too much throttle) causing the rear car of the car the rotate faster than the front of the car. This is also referred to as "rotating" the car

- **Correction:** Steer into the slide (thus increasing the radius traveled). Apply a little more weight to the rear of the car by gently applying more throttle (all that is required is a tiny movement of your foot, 1/16" or 1/8" is all it takes). If you lift off the throttle while the car is over steering, more weight will be applied to the front of the car thus taking more weight off the rear wheels and your car will spin. Especially in older 911's (where most of the weight is) it will send the pendulum in motion. You may hear your instructor say, "don't lift" when you are in the middle of a turn or when the car starts to rotate. If you lift or hesitate to react, as the old verbiage says, you will loose.



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Just when you thought you knew the answer - the question changed!

- **Your car's capability may change during the weekend**
  - As the weekend progresses and your lap times improve, changes may occur to your car that you need to consider:
    - The harder you drive, the more your tires will heat up, resulting in increased tire pressure. The more tire pressure is increased, the more the tire will tend to skid over the surface of the track (loss of traction, they may feel greasy). Your car may work really well for a few laps, and then you may start to feel a reduction in traction the rest of the session. You need to check tire pressures after each session and adjust as needed. You need to stay within the limits of your tires.
    - Your brakes will be used harder than normal for extended periods of time. This generates a lot of heat (again possibly exceeding your car's capability). If this happens brake fluid may actually boil inside the caliper resulting in a gas byproduct. Gas compresses easier than a fluid, thus a soft pedal. You may need to bleed the brakes. Also, some brake pads may experience "fade". They are not as efficient after the temperature reaches a sustained point. If either condition occurs move your braking points back and lengthen the amount of time you hold the brakes.

- **The track's capability may change during the weekend**
  - Moisture/temperature impacts the laws of physics by changing the coefficient of friction.
    - Braking points must be increased and corner speeds must be reduced.
    - Most public roads are crowned so that rain will run off to the side of the road. Most racetracks are flat. This can result in standing puddles of water. Your car will hydroplane if you drive over standing water. Your car will loose traction that can only be regained by gently reducing speed until your tires can displace that volume of water (again exceeding the 100% of their capabilities) or until you are through the puddle. Whatever direction your front wheels are pointed at the moment your car regains traction will be the direction that your car takes, so be careful not to overcompensate when you feel your car hydroplaning. You may have to significantly adjust your line around the track when it is wet. You are always searching for the fastest line, it might be different from the dry line.
    - Not all track surfaces have the same coefficient of friction, in the dry or the wet. Concrete ribbons that have been applied to repair sections of track tend to be much more slippery in the wet. Try to straddle them if possible. This too may impact your line in some corners.
    - The wet will exaggerate your entire driver input, being smooth is even more important since the car's capabilities have been reduced. If you are fast in the rain, you'll be very fast in the dry.
    - Rain will equalize horsepower and will show who the real drivers are. Many of our best students started with wet DE weekends. It made them be smooth and this carried over into the dry.

Summary – Bringing it all together

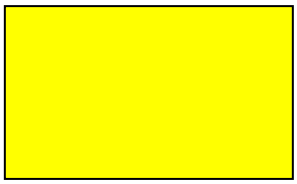
- We are here to have fun and learn.
- This is NOT a race event.
- All of us should return to our homes with our cars in the same condition they arrived.
- Car/driver/track have limits that need to be respected.
- The laws of physics govern your car. You control how physics are applied to your car by shifting weight front to back and side to side. A car can only give 100%. You must learn where that envelope is and work within that envelope.
- The key to car control and speed is smooth driver input to the steering wheel and pedals.
- Your instructor is in command of the car, even though you are driving. Be sure to work out communications and do not hesitate to do what is asked. If you question why and want more understanding, do this in the pit lane where both of you can spend 100% of your effort to listen and learn.
- Mentally drive the track in your head during your off time. Think about braking and shift points. If you can drive the track in your head, you can concentrate on driving smooth and fast.
- Take rides with other instructors, watch their input and feel the result.
- Before each session, make goals like I need to enter turn 1 with more speed, I need to work on my turn in point on turn 5, etc.
- Fill out the student evaluation booklet after each session with your instructor and be sure to submit evaluation form before leaving the event. We also encourage you to fill out an instructor/event survey so we can measure how our instructors are doing. This will all be held in confidence and will help us improve our schools.

Special thanks to E.Paul Dickinson for granting us permission to share many of his excellent graphics and inserts. Please take a look at his driving services offered at www.epaul.com

[i] HSR Driver Instruction Manual, E.Paul Dickinson
[ii] HSR Driver Instruction Manual, E.Paul Dickinson
[iii] HSR Driver Instruction Manual, E.Paul Dickinson
[iv] HSR Driver Instruction Manual, E.Paul Dickinson
[v] HSR Driver Instruction Manual, E.Paul Dickinson
[vi] HSR Driver Instruction Manual, E.Paul Dickinson
[vii] HSR Driver Instruction Manual, E.Paul Dickinson
[vi ii] HSR Driver Instruction Manual, E.Paul Dickinson
[ix] HSR Driver Instruction Manual, E.Paul Dickinson
[x] HSR Driver Instruction Manual, E.Paul Dickinson

FLORIDA CITRUS REGION PCA DRIVERS EDUCATION

Flag Explanations

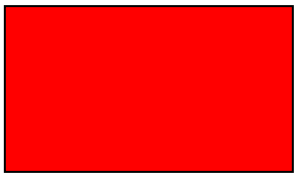


Standing Yellow

CAUTION! Slow down and be prepared to take evasive action. Incident should be off of the track surface.

Waving Yellow

Proceed with extreme caution, slow down and be prepared to stop. Incident is on track. The track may be completely blocked.

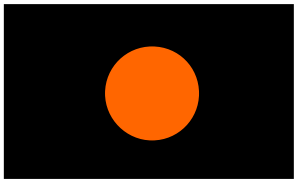


Red Flag

Stop quickly and safely, watching for cars behind you. DO NOT JAM ON YOUR BRAKES. Proceed slowly until you can view the next manned corner station and move to drivers right.

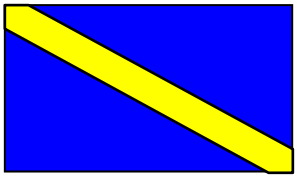
Black Flag

Acknowledge the flag and pull into the pits. There will be someone waiting to talk with you. There is something that the officials need to discuss with you.



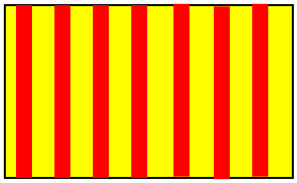
Meatball

This is a mechanical black flag. Acknowledge the Flag and proceed to the pits with care. There is something wrong with your car that you need to fix or have checked before you continue. If this flag is not available, a regular black flag may be used.



Blue Flag

Passing flag. A faster car is approaching. In a passing zone give a Signal, give them room and let them by.



Debris Flag

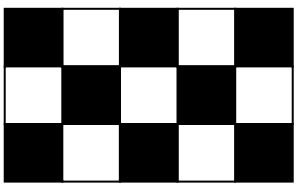
There is something on the track. Could be oil, water, or parts from other cars. Slow down. Scan the track surface to see what the debris is and be prepared to drive through it or drive off-line to avoid it.

White Flag

The white flag indicates a slow moving or emergency vehicle is on course. Be prepared to slow down. You may pass the vehicle if directed to do so and it is safe to do so. Flag may also be used to indicate that a car preceding you is entering the pits.

Green Flag

Start of session and clear course. Proceed at Speed.



Checkered

End of session. Take a cool down lap and proceed to pit lane and into the paddock at a slow and safe speed.