

# 2014 NNJR PCA Car Control Clinic

## Student Guide

Created by:  
Bill Gilbert  
Drew Karpinski  
Tom Iervolino

## **Thank You!**

Thank you for enrolling in the Car Control Clinic.

## **Goals of the Car Control Clinic**

The primary goal of the Car Control Clinic is to make the participants feel like they have an improved sense of control behind the steering wheel. You will accomplish this by learning the fundamentals of good car control through a series of instructional exercises designed to push the limits of the participants and their machines. The other goals - equally as important - are to BE SAFE and HAVE FUN!

The car control exercises are purely designed for the sake of learning. There are no timers at this event, and there are no winners or “results” of any kind. The speed of the participants’ automobiles is only important as it relates to being able to properly get something out of the exercise. For example, to properly learn the braking exercises, the car must be traveling at sufficient speed to allow for ABS to be triggered.

The exercises are designed to be followed closely by the instructors so that we maintain continuity in the way these skills are taught to the participants. Please take the time to review each exercise carefully as described in this manual.

## **Basics of the Day**

Before you leave home, be sure you pack

- your helmet (if you don’t own one we have a few loaners),
- sun block,
- lunch,
- plenty of water, and
- a chair.

While there is no pre-event tech required (your car will be checked out at the event), be sure you

- have sufficient rubber on your tires,
- have the tires inflated to factory spec, and
- have a full tank of gas.

Plan to be at MetLife Stadium, Lot J no later than 8:00 AM for sign-in.

Students will be divided into two groups - AM drivers and PM drivers. While the one group drives the other will work, and vice versa. The running groups will be distributed among various exercises: three different skidpads (at least one clockwise, one counter-clockwise), a braking exercise, and a slalom exercise. After the groups complete each station they will move to the next with their instructors.

We expect to be finished by around 3:30 PM, which allows for a short lunch break.

## **Preparing the Car at the Event**

You should take a few minutes when you first arrive to make sure that your car is prepared for the day. All floor mats should be removed, as well as any loose objects from the trunk(s), glove box, or center console. You may want to bring large plastic garbage bag to hold everything, especially if it looks like rain.

There should not be any equipment affixed to the windshield or other glass of the car such as cameras, radar detectors, or EZ Pass badges.

Throughout the day, continue to take note of the car and the condition of the tires. If anything concerns you about your car, do not hesitate to discuss it with your Instructor.

## **Preparing Yourself**

When you first sit in the car, take note of your driving position. Your arms should be able to comfortably hold the wheel at the 9 and 3 o'clock positions with a slight bend at the elbows. Your legs should also be able to fully depress the pedals without "locking" your knee.

Please note the importance of being smooth on the controls of the car - the steering wheel, shifter, gas and brake. The exercises will reinforce smoothness, one of the most important aspects to improved driving, and something you should keep in mind throughout the day.

The course was designed with your safety in mind. If you are going to wiggle or spin, this is the place to do it safely! Relax and to have fun!

## **Exercises**

### **Skidpad**

We will be running skidpad exercises, one session clockwise, and the other counter-clockwise. The courses will be watered down by a fire

truck. The wet pavement makes the “breakaway” speeds slower and creates much less wear and tear on the tires.

The objective is to get the student to feel the car at its limit of adhesion. It starts by having the student drive the car in a steady circle reasonably close to the cones, and then gradually increasing speed to the point where they are steering with the throttle ONLY (i.e. no steering wheel input.) This is much harder than it sounds! As the student increases their throttle input, their car should start to under steer more, pushing them further from the cones and making the circle larger. As they reduce their throttle input while keeping the same steering wheel angle, their line will become tighter and the circle will become smaller.

Another critical teaching point to this exercise is the concept of ‘ocular driving’, sometimes called driving with your eyes. The student is instructed to look far ahead through the circle, half way across, if possible. Their head should remain fixed like their steering wheel. This illustrates how important ‘looking ahead’ is in driving. You will feel a greater sense of control once you have mastered these two main points of the exercise.

If the student spins, that is ok, though not the objective. We want to be pushing the limits throughout these exercises, and challenging the students to see what the ‘other side’ of the limit of adhesion feels like.

The entire exercise should be run in second gear, unless the gearing is not sufficient to get the car up to the necessary speed on the skidpad. Between runs, instructors will reinforce what the driver and car did on the last run.

## **Braking Exercise**

The objective of the braking exercise is to get students to use 100% of the brakes available in their car. Most won’t come close to fully using the brakes on the first try. If your car is equipped with ABS you should squeeze on the brakes until you feel resistance (i.e. don’t jump on the pedal), then gradually push very hard. You may be hesitant to get on the brakes fast enough, or push hard enough. Your instructor will help you overcome this. You should use the same technique if you have non-ABS brakes, except that you will have to be ready to modulate the brake pedal to avoid lockup.

There are a couple of very important aspects to this exercise. First, you will need to accelerate briskly from the start point (although it is not intended to be a drag race), and continue building speed until you

approach the first turn. This first braking zone is part of the exercise as you should only slow the car enough to make the turn. Your instructor will help you not over drive this slow turn by coaching you to brake hard enough and soon enough. Instructors may also discuss the concept of the 'slow in, fast out' approach to turns.

Another important aspect to this exercise is the concept of *squeezing* the brakes - even under hard braking - rather than *stabbing* the brakes. When the brakes are applied by stabbing or stomping on them, even with an ABS car, the weight transfers almost completely to the front tires unsettling the car and reducing braking capability and overall control. However, when we use smooth but firm brake input, we achieve better weight distribution under braking and use the available contact patch of all four tires more efficiently.

## Slalom

Slalom is all about using the steering wheel and *looking ahead*. You will be encouraged to start out slowly and maintain a steady, comfortable pace throughout the entire course. Instructors will focus more on form as you gain the sensation of looking ahead while correctly turning on the backside of each cone.

The goal is to cross the imaginary line between cones as early as possible to set up for the next cone and turn. The most effective way to do this is to start the turn early at the first turn in the slalom, carefully pointing the car across the middle line while almost running over the "back" of the cone being passed. We don't want to see lots of cones destroyed, so you should gradually increase speed while staying close to but not hitting the cones.

The turnaround at the far end of the course is another 'slow in, fast out' turn, which is easy to miss. You will get a good feel for how your car turns and transitions when alternating inputs (left turn, then right turn) are introduced. Again, smoothness of inputs (shifting, steering, braking, and throttle) are emphasized.

More advanced drivers participating in the Car Control Clinic may also notice, especially if they have already done one of the skidpad exercises, that the line of the car through the slalom is affected by the throttle input. More throttle will generally cause the car to under steer (push), while a throttle lift mid-corner will help the car turn and may induce some oversteer, thus reduce the amount of steering wheel input required. This 'throttle steering' technique should generally be tried by more advanced students.