



*By Bill Gilbert for the NNJR Chief Instructors*

With every new model, Porsches get delivered with more sophisticated “driver aid” technology (often referred to as “electronic nannies”). DE instructors are often concerned that nannies hide driving mistakes by students. Put another way, if the student were driving the same way in a car without these technologies, they would be off the track. In this article, we’ve pulled together the best current advice we can find for instructors (and students) to deal with these technologies.

First, a few terms. PSM, Porsche Stability Management, is often referred to as “Please Save Me.” PSM looks for pending understeer, oversteer or spin and brakes one or more wheels to counteract the undesirable car behavior. It will also act as traction control using the brakes and/or throttle. On some Porsches, ABD (Automatic Brake Differential) and PTV (Porsche Torque Vectoring) are tied to PSM; they use the rear brakes and the throttle for traction control. Of course, ABS (Anti Lock Braking System) uses a computer to prevent brakes from locking by quickly releasing, then reapplying the brakes.

Other technologies that come into play are PASM (essentially a smart suspension), Sport mode settings (“Sport”, “Sport +”), rear wheel steering, PDK transmissions and auto braking systems.

The major technologies are described below. But first, the most common question: should I turn PSM off? Short answer: NO. Long answer from Cass Whitehead, Chief Driving Instructor at the Porsche Driving School: before you turn PSM off, tell me exactly where and why it came on during the last 5+ laps. (Autocross and Car Control Clinics are good places to learn what happens when PSM is off; the track is not).

Bottom line for instructors: make sure your students leave PSM on. It is highly unlikely that a Green, Yellow or Blue student has any reason to turn it off. If you are instructing an intermediate or advanced driver, leave PSM on and help them figure out where PSM is active (see the PSM section below).

Bottom line for drivers: don’t expect an instructor to ride with you on track if you turn PSM off. If you are a solo driver and thinking about turning PSM off, re-read Cass Whitehead’s advice several times along with the details on PSM below. And remember that we are aware of more than one driver who had an incident immediately after turning PSM off.

Most of the other technologies including ABS and ABD/PTV cannot be turned off. Sport and Sport+ are often chosen by the driver when going on track. This may not be appropriate for novice drivers since it can make the car more sensitive and add to the overload (esp. Sport +). It’s also worth noting that Cass Whitehead says Sport+ isn’t always the fastest, even for a pro driver. For those with a PDK, there is another choice: manual or automatic? Answer: automatic until the driver is very competent with everything else. (Here is one of several reasons: first gen PDK’s in manual would upshift at redline with the driver’s foot on the floor; second gen PDK’s do not, they hit the rev limiter).

The newest technology, about which little is currently known, is automatic braking. It is on some newer Porsches (2017+) called Automatic Emergency Braking System and on some new BMWs and many other cars. PCA has issued guidance saying these systems must be turned off (see below).



## ABS



ABS is the oldest technology (on Porsches since 1985) and fortunately one that the driver and instructor can feel and (usually) hear. It is also easy to use as a learning tool. If ABS has been activated on a dry track, the driver has just driven over the limit and it's time to brake earlier. For those looking for the last tenth, remember that peak braking force occurs just before ABS kicks in.

As instructors, we wish the other technologies were so obvious to the driver.

## PSM



PSM (generically Electronic Stability Control) first showed up in 1998 as an option on 996 and Boxster and was standard on all models by 2005. A second generation of PSM was introduced on the 997, 987 Boxster and continued to 991.1. The latest, third generation is on 991.2 and 718. Here is a summary of their characteristics:

- First gen PSM can be somewhat intrusive for a skilled driver but it does turn on a dashboard light when activated. It can be turned off, though it will reappear in certain emergency situations (e.g. ABS activation on both front wheels).
- Second gen PSM limits are affected by the Sport and Sport + settings. The limits are higher (less intrusive) with each step. Pro drivers say they can drive as fast with second gen PSM on as with it off and never have the PSM activate.
- Third gen PSM is not affected by Sport settings (which are set with a rotary knob). PSM has its own buttons: Normal, Sport and Off. Sport is even less intrusive for a talented driver but novice drivers should leave PSM in Normal.



In theory, if any PSM is active, the driver should see a light on the dash. In practice, many drivers never see the light even when activating PSM on several corners every lap. In some cases, the instructor may be able to see the light but often it is hard or impossible. As a result, instructors need to trust the “seat of their pants” about what is happening. Often there will be a slight wiggle or other unusual feeling. For yellow and especially blue and more advanced students, instructors should ask the student to find the PSM light before they go on track and tell the student to glance at it regularly.

As a student starts going faster, they will probably trigger PSM. Best case is that the student and instructor see/feel it. Both then know that they’ve reached the limit.

For students who have done several events, we can ask: How often do you have to replace rear brake pads vs. the fronts? We can also look at the rear calipers. If the rear calipers are discolored (we’ve seen purple calipers on Caymans) or the rear pads are being replaced as often as the fronts, then we know that PSM has been active.

Cass Whitehead talks about using PSM as a learning tool “with an occasional nibble.” Ross Bentley and other expert driving coaches say essentially the same thing. I strongly recommend reading Speed Secrets Weekly 207 for several expert views, all of whom clearly advise against turning PSM off. Here is one quote from Ross:

*“If a driver is unable to do what I'm talking about here - knowing the limits of their car with the driver aids on - there is no way they should turn them off.”*

### **PTV, ABD, etc.**

If PSM activation is sometimes hard to discern, PTV/ABD is even worse. I’m aware of highly experienced drivers who were unaware they were triggering PTV. And there is no light on the dash to tell us! As a result, instructors have to become a detective. For a novice driver, these systems generally shouldn’t come into play, except for someone seriously overdriving the car. For students who have done several events, we can ask: How often do you have to replace rear brake pads vs. the fronts? If the rear pads are being replaced as often as the fronts, then we know that PTV has been active. 991’s and similar generation Cayman’s deserve special attention since these systems are so seamless for the driver. One technical note: PTV, ABD etc. are linked to PSM; i.e. run by the same computer so that they work in an integrated fashion. But it doesn’t matter to the instructor which one is active: we just want to know that the computer is helping the driver.

### **Rear Axle Steering**

A recent advance is rear wheel steering which helps at both low and high speeds. For our purposes, the high-speed effect to note is that it makes a car turn in much more quickly and may surprise the driver and/or instructor. In some cases, instructors will need to have their student slow down their hands and/or adjust their turn in points. It also makes a heavy car (e.g. 911 Turbo) feel much lighter which could lead to over confidence on the part of the driver.





### **Automatic Emergency Braking Systems; Collision Avoidance Systems**

At this time, it is not known how “Automatic Emergency Braking Systems” will react at speed in the HPDE environment. For the safety of all participants PCA has decided not to allow affected vehicles to run with our group at HPDE events unless the system can be and is turned off. We have no doubt that this equipment is very helpful in street driving; however, we cannot risk endangering drivers, instructors and their vehicles at our on-track driving schools.

*-- Alex Bell, PCA National DE Chair*

### **Summary**

Many instructors wish that all students would learn to drive in an older car without any nannies (maybe ABS). But that day has come and gone. As a result, we all have to learn how to read the electronic aids in ways that assist our students. The first principle is to keep our students and ourselves safe. This means leaving the electronics active (except Automatic Emergency Braking Systems) in all on-track situations and explaining to our students why this is the best way to learn. The second principle is to use the nannie limits as a teaching tool. This means helping our students know when they are active and adjusting their driving so as to not trigger them. We should strive to avoid the situation where a driver becomes dependent on the nannies but doesn't know it.

The NNJR Chief Instructors invite further comments and suggestions for dealing with the challenges posed by electronic driving aids.

