



# NJMP Lightning II



## NNJR "Trackside Classroom" ***Smoothness & How to "Read" the Car*** *October 9-10, 2021*



Porsche Club of America



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## ***Disclaimer***

*The techniques shown here have been compiled from experienced sources believed to be reliable and to represent the best current opinions on driving on track. But they are advisory only. Driving at speed at NJMP Lightning, or any other track, requires skill, judgment and experience. These techniques assume the reader has high performance driving knowledge and applies them as applicable to their level of driving experience.*

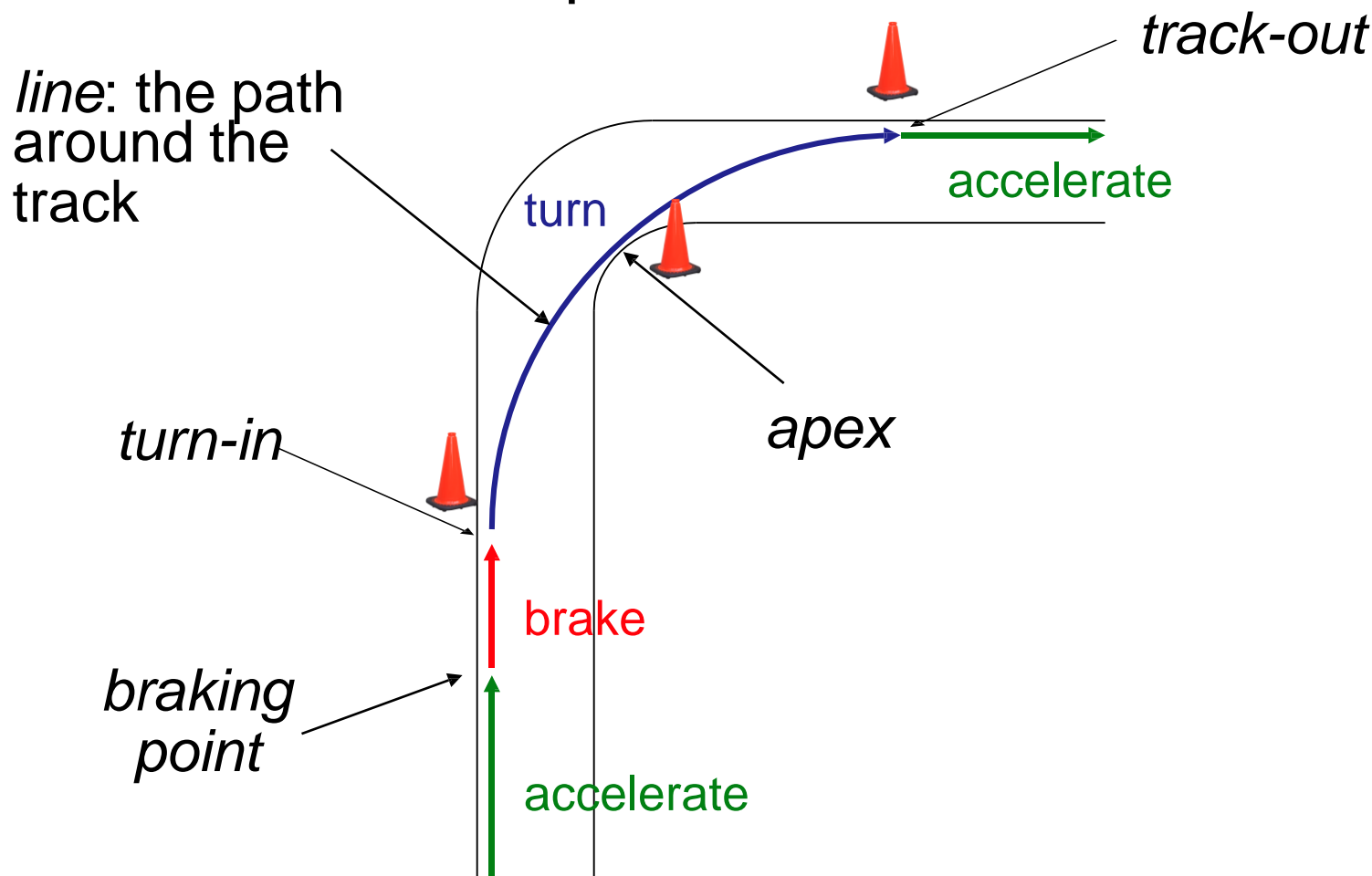
*High-performance driving can be very dangerous, carries inherent risks and may result in injury or death. NNJR and PCA make no warranty, guarantee or representations as to the absolute correctness or sufficiency of any representation contained herein. Nor can it be assumed that all acceptable safety measures are contained herein or that other or additional measures may not be required under particular or exceptional conditions or circumstances.*

- A reminder: Basics of Track Driving
- Smoothness
  - What is it?
  - Why does it matter?
  - How to achieve? How to Read the Car?
- Lightning Turn by Turn

# NNJR The Basics of Track Driving



- Use reference points to drive a consistent line



Slide by Chuck Tucker from community.hagerty.com, used under



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Slide 4



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# NNJR Basics of Track Driving



Use an ABC rhythm

- **Accelerate** on the straights
- **Brake** while going straight, before the corner
- **Corner (Turn)** relax the brakes and turn
- **Accelerate**
- **Brake**
- **Turn** → some corners: just use less gas (lift)
- **Accelerate**
- **Brake**
- **Turn**
- . . .

Slide by Chuck Tucker from community.hagerty.com, used under



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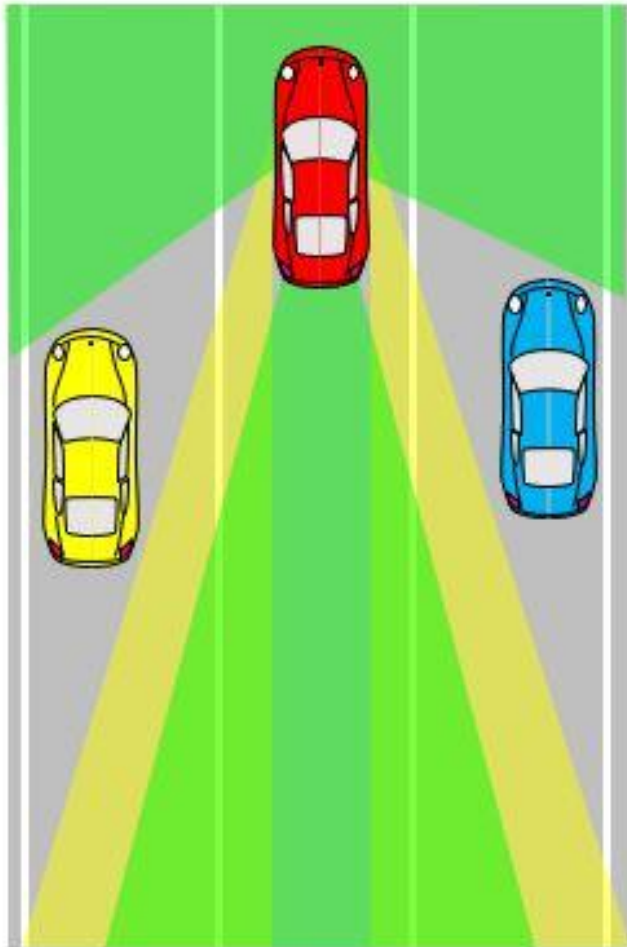


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- **Start in correct seating position!**
- **Rearview Mirror**
  - Adjust to see entire rear window
- **Left Mirror**
  - Rest head against driver's window
  - Adjust to barely see left rear fender
- **Right Mirror**
  - Lean right so head is under rearview mirror
  - Adjust to barely see right rear fender



Common



G. Plazer, "The Geometry of Automotive Rearview Mirrors—Why Blind Zones Exist and Strategies to Overcome Them," SAE Tech. Paper 950601 (1995).



## SMOOTHNESS





- Objective: keep the car balanced
  - i.e. No more weight transfer than needed
  - Just enough input

*"Race car drivers are minimalist. They put the least amount of input in."*

- Johnny O'Connell

- Deliberate and Precise use of the controls
  - Steering, gas, shifting
- Never upset the car

*"When I look fast, I'm not smooth and I am going slowly.  
And when I look slow, I am smooth and going fast."*

- Alain Prost

Smooth is fast because...  
a balanced car has more traction.

**SPEED SECRETS**

[www.SpeedSecrets.com](http://www.SpeedSecrets.com)

Ross Bentley



1. Awareness
2. Vision
3. Learn the car and how to read the car
4. Never rush



# NNJR 1. Awareness



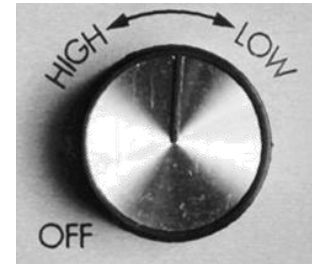
- How smooth are you now? \*
  - Pick one aspect
  - Rate from 1 (terrible) to 10 (perfect)
  - Write it down in your notebook
- Consider
  - Turn in (slow, fast, progressive?)
  - Brake application
  - Gas application
  - Upshifts
  - Downshifts
  - Brake release



*\*Credit: Ross Bentley Speed Secrets 196*



- Classic Advice
  - Controls are not “on/off”
  - No jerky or sudden movements
  - Wind, unwind steering
    - Turn progressively and once: “take a set”
  - An egg between foot and gas pedal
    - “Squeeze” the gas, “roll on”
  - Braking
    - Move foot smoothly (heel on floor)
    - Smooth but hard initial pressure (no egg!)
    - Gentle Brake Release
  - “No effort” gear shifts (3 motions)





- A prerequisite to be smooth
- How far ahead are you looking?
  - Look through and around each corner
  - Look at exactly where you want to go
  - 20 seconds ahead!



# NNJR Vision Example

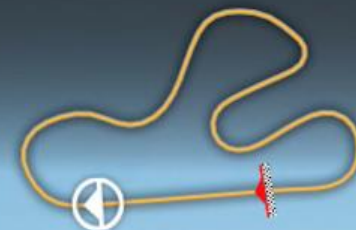


Chuck Tucker, Cayman GT4, 09/10/2017  
Putnam Park, Lap 7/15  
Sector – Sector 1

Total Time:  
Lap Time:

0:08:19.8  
00:08.3

Glance  
Mental  
Focus  
Peripheral



Source: Central Indiana PC



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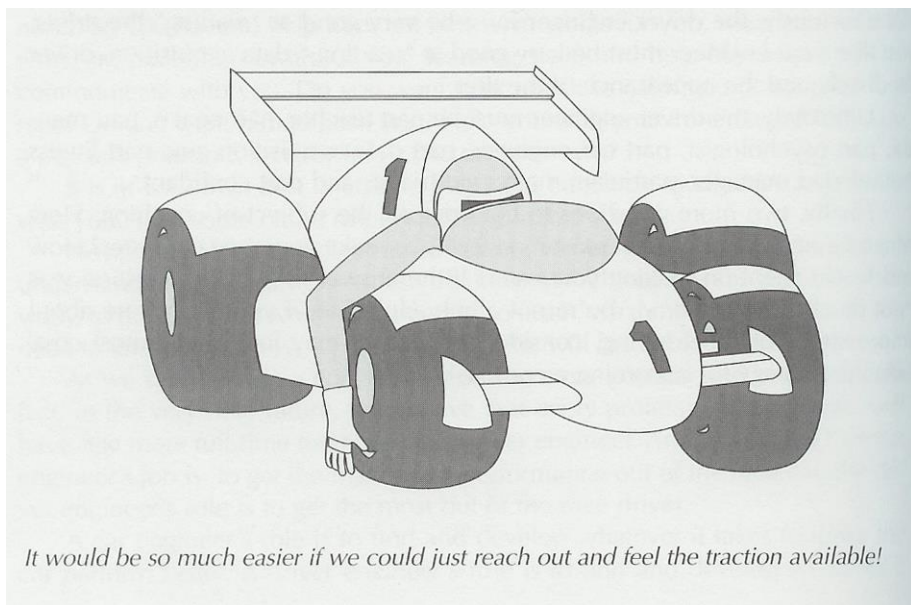
- Let the car teach you
  - *“You manage or guide a car, you don’t ‘drive’ it. It weighs 3000 lbs and you weigh 150, 200, 250.”*
    - Dennis Macchio, Bertil Roos and MMC Chief Instructor
- Sensing the car is a learned skill! \*
- PSM, etc. get in the way!
- Develop sensitivity to what the car is saying; i.e. “car feel”
  - How?

\* *Ross Bentley*

# NNJR How to Develop “Feel”?



- Sensory input sessions\*
  - Sound
  - “Seat of the pants” (Kinesthetics)
  - Feel in the steering wheel
  - Vision: car’s path vs. intended path



*\*Ross Bentley*



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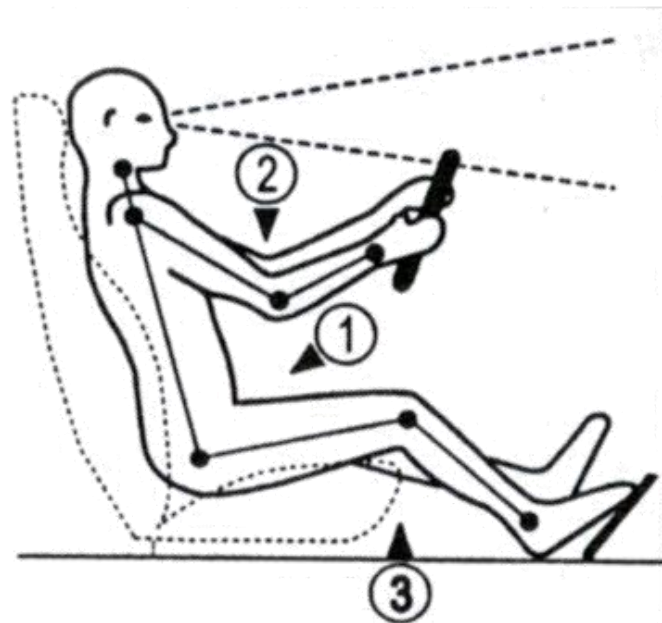
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Slide 17



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- Check out your track car\*
  - Does seat fit perfectly?
  - Vision constraints with helmet and HANS?
  - Mirror adjustments
  - How does steering feel? Brakes?
  - How does it sound? Feel?



\* For 10 minutes, sit in your stationary car with helmet, etc. on.  
What might be negatively impacting  
The amount of quality visual information you take in?  
What you feel?  
What you hear?

*Ross Bentley Speed Secrets 189*

# NNJR Ways to Speed Learning



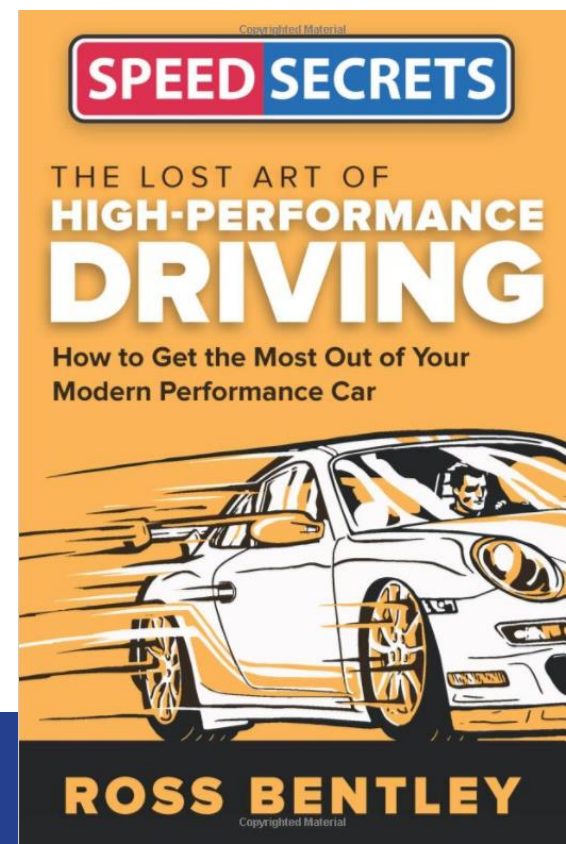
- Car Control Clinic
- Autocross
- Skidpad



# NNJR Ways to Speed Learning



- Pick one aspect (one control) and focus on refining it
- Use your street driving for reinforcement
  - Lots more time on street than track
  - Will make you a better street driver!
  - Ross Bentley's book
    - Lots of practical advice





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## 4. Never Rush



- Never rush or force controls\*
  - Upsets car balance
  - Harder on the car
  - May result in an error: e.g. missed shift
  - Accuracy, precision more important than speed
- Smooth use of controls is consistent with rapid use ... After LOTS of practice!
- Remember: less (use of a control) is more

**Vic Elford:** *“You will notice that professional drivers often act extremely quickly, but they are rarely in a hurry. Turning from a straight must be a smooth flowing transition into and then out of the corner.”*

*\*Except in an Emergency*



- Remember the Basics!
- Smooth is fast: keep the car balanced
  - Be aware
  - Look (far) ahead
  - Learn your car, and how to feel it
    - Sensory input sessions
    - Seating position, mirrors, etc.
    - Take advantage of Autocross, skidpad, etc.
    - Practice in daily driving
  - Less is more

**Jackie Stewart (1985):** “Senna is mellow on and off the throttle, calmly, smoothly, almost slowly.”





## NJMP - LIGHTNING

