



**NJMP ThunderBolt**



NNJR “Trackside Classroom”  
***Passing and Traffic Management***  
*May 26, 2021*



Porsche Club of America



PORSCHE

## ***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 Thunerbolt, 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.*

- Passing and traffic determine
  - Safety
  - Driver attitudes
  - Fun factor
- The Track Pack emphasizes “courtesy”
  - Drivers being passed
  - Drivers taking a pass
- Passing is all about communication and cooperation
  - Both drivers must be on the same page



# NNJR DE Passing Basics



- Never pass without a signal (from driver)
- One *clear* signal for *each* car you want to pass
  - Hand down, inside car between signals
- Overtaken car **MAINTAIN YOUR LINE\***
  - Do not move over “to be polite”
  - Do be predictable and easy to read
  - Lift briefly (if needed)
- Overtaking car **ALWAYS GOES OFFLINE\***
  - Be prepared to enter following corner offline
- Point sooner than later
  - As soon as you are comfortable



\* Exceptions noted in drivers meeting

Source: Central Indiana PCA



Porsche Club of America

NNJR: Northern New Jersey Region Copyright 2020

Slide 4



PORSCHE

- Preparation
  - Study track (line, reference points, etc.) and passing zones...note mandatory sides!
    - Video, track maps, turn by turn
- Green, Day 1
  - Have instructor help monitor cars behind
- Green, Day 2
  - Give/take signals on front straight
- Other run groups
  - Give/take signals in all passing zones
  - Instructor as a double check: not a crutch!



- Your run group at TBolt

- Green
- Yellow
- Blue
- White
- Black
- Red



- Number of previous Thunderbolt events

- 0
- 1-2
- 3-5
- 6-10
- >10



# NNJR Traffic Management



1. When to look in mirrors?
2. How to check mirrors?
3. How to give pass signals?
4. Where to give pass signals?
5. When to give pass signals?

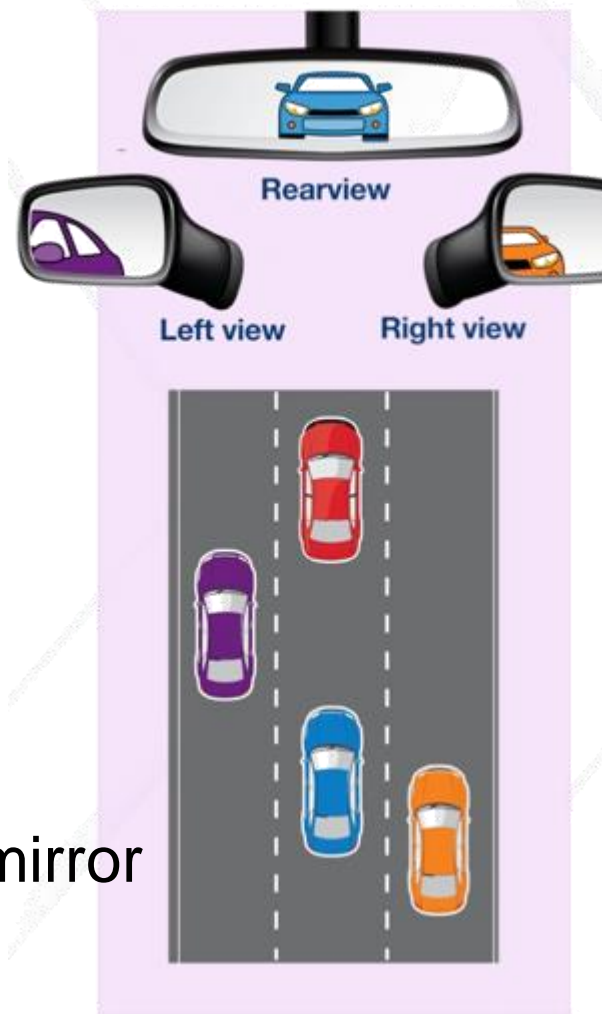


- Critical part of Traffic Awareness and Management
  - MUST be aware of cars behind
- Should never be surprised by a car in mirror

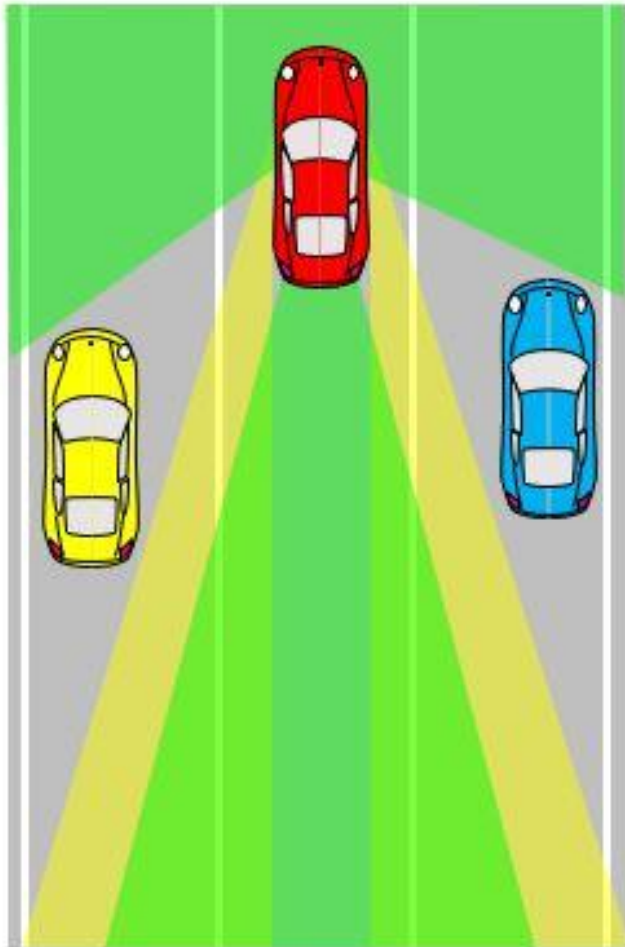




- Start in correct seating position!
- **MIRRORS**
- **Rearview Mirror**
  - Adjust to see entire rear window
- **Left Mirror**
  - Rest head against driver's window
  - Adjust to barely see left rear fender
- **Right Mirror**
  - Lean right so head is under rearview mirror
  - Adjust to barely see right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



Common

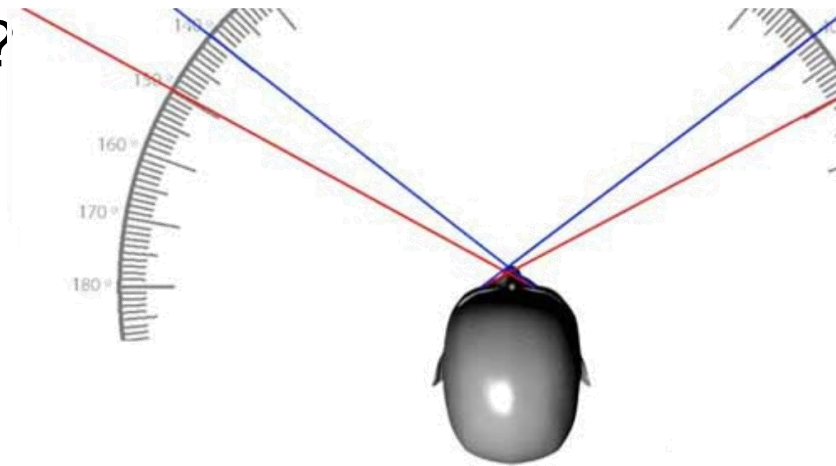


G. Plazer, "The Geometry of Automotive Rearview Mirrors—Why Blind Zones Exist and Strategies to Overcome Them," SAE Tech. Paper 950601 (1995).

- Poll? Most important time to look in mirrors
  - Beginning of straightaway (passing zone)
  - Middle of straightaway
  - End of straightaway
  - Entering a corner
  - In a corner
  - Exiting a corner



- Entering a passing zone
  - As soon as your car is straight, before if you can
- End of a passing zone (straight)
  - How many cars are back there?
  - How fast are they closing?
- Middle of a longer passing zone
  - How many cars are back there?
  - How fast are they closing?
- During a pass!
- In a corner: NO!



- Frequent, quick glances at rear view mirror
  - If a car is there, another glance
  - Side mirrors when cars are close
- Second glance confirms details
  - One car vs. multiple cars (e.g. colors)
  - How far back / closing speed
  - NOT a long look (“focus”)
- Must become a habit







- As early as possible
  - Make sure it can be seen
    - Contrasting color gloves
    - Full arm extension
- One clear signal per car
  - Hand inside between signals
- Brief lift as needed
  - Esp. for lower hp car
- Monitor passing car(s)
- Never (“aggressive driving”)
  - Race passing car to next corner
  - Hold up a faster car



# NNJR Left Side Pass Signal



Porsche Club of America

NNJR: Northern New Jersey Region Copyright 2020

Slide 16



PORSCHE



# NNJR Right Side Pass Signal



Porsche Club of America

NNJR: Northern New Jersey Region Copyright 2020

Slide 17



PORSCHE

- Only in a passing zone (duh)
- Entering pass zone with car right behind (duh)
- Middle of passing zone with rapidly closing car behind
- If surprised by car in passing zone
  - Requires judgement if approaching end of pass zone
  - Never in the brake markers!





# NNJR Thunderbolt Passing Zones



## Track Information:

**Length:** 2.25 miles  
**Turns:** 14 Turns  
**Track direction:** Clockwise



Porsche Club of America

Copyright NNJR 2021

Slide 19



PORSCHE

- A car shows up that wasn't there before
  - Even if you can out-run them on the straight
  - Especially if you can out-run them on the straight!
- If a car caught you
  - They are quicker over the whole lap
  - **They won't hold you up**
- If a lower hp car caught you
  - They **need** you to point them by and go easy on the gas pedal
  - Watching them take the turns can be helpful
- When held up by traffic, use your judgment



Source: Central Indiana PCA

- Anticipates cars approaching before and during a passing zone
- Car being passed sees overtaking car early
  - Pass signal timed for overtaking car to pass without lifting
- Both cars able to drive “uninterrupted” laps



# NNJR Passing without Slowing Video



Porsche Club of America

NNJR: Northern New Jersey Region Copyright 2020

Slide 22



PORSCHE



# NNJR Passing and Traffic Management Summary



- Key to safety and fun
- It's all about communication and cooperation
- Think in terms of “etiquette”
- Know and respect all passing zones
- Giving a pass
  - Use your mirrors!
  - Adjust for low hp cars
- Taking a pass
  - Look ahead
  - Be patient
- Remember: your friend is in the other car!







# NNJR Extra Credit?



Porsche Club of America

*NNJR: Northern New Jersey Region Copyright 2020*

Slide 25



PORSCHE



- On the street
  - Scan mirrors
  - Count cars behind and beside
  - Try to remember type of car and colors
- On track
  - Describe cars behind at beginning and end of straight
    - Number and colors
    - How far behind?
      - Getting closer or further away?
  - Use all mirrors when cars are close
    - Esp. during a pass

- Present yourself
  - In pass zone, not before
  - Squarely behind car
  - Wait for signal
- Pass cleanly
  - Immediately: no hesitation!
  - Not too close
  - Monitor other cars
  - Thank you wave
    - Time permitting
- Give the driver a pass later if they catch you
  - Common
- Never (“aggressive driving”)
  - “Chop”: i.e. plan to take next corner off line
  - Flash lights / horn
  - Weave or tailgate
  - Expect or take a late pass



# NNJR The Overtaking Car / Driver



- Look ahead: plan your pass
  - Where will you catch that car?
    - Just before climbing esses? Fall back a bit
    - Right after Oak Tree? Perfect
  - Who is catching you?
    - Before you want to pass?
- You have the primary responsibility
  - Assuming the overtaken car is predictable
- If in doubt, do not pass!
  - Wave off the pass signal





# NNJR Wave Off a Late Pass



Porsche Club of America

NNJR: Northern New Jersey Region Copyright 2020

Slide 29



PORSCHE

- Trains can be frustrating and make drivers impatient
  - Don't be that guy or gal!
- If you have more than two cars behind, you are the cause!
  - Give multiple passes as soon as possible
  - But avoid overslowing
- In the middle of a train?
  - Faster car behind: send around
  - Be patient, esp. in long no-passing areas
  - Can roll through the pits
    - Option: tell the Chief Instructor (with car numbers)



- Several cars behind?
  - Use long pass zones to send 2, 3, 4 or more around
    - Front straight, back straight
  - Use all other zones to send one car past
  - Avoid overslowing
  - Clear signals: one per car
- Several cars ahead?
  - Watch for multiple pass signals
  - Do NOT automatically expect to pass
    - Wait for signal
    - Manage your speed
    - Present yourself
  - Patience in no-passing zones



- Check your mirrors and decide **before** the corner
- **Drive your line** in the turn, ignoring the car behind
- Complete turn normally, **track out all the way**
  - Signal on appropriate side
  - Oak Tree: Move promptly to right, signal left
  - Entering front straight: stay left, signal right
- **Lift** as needed to allow the pass
- Time separate signals for each car
  - Early but visible





- Recognize your classmates' tendencies
- Hang back 2-3 car lengths during the turn
- Get close enough to show you are ready to pass
  - ~1-2 car lengths (**present yourself**)
- After passing, wave thank you
- **Take off a little extra speed** for the next corner
- **Avoid target fixation.** There may be cars behind who should pass you!



Credit: Central Indiana PCA



Porsche Club of America

# NJR Rhythm and Etiquette to Passing after a Corner



- Both drivers anticipate the pass
- Driver **giving** the pass
  - Drives their best line through turn, tracks out fully
  - Glances in mirror as they track out
  - Moves right or left (if needed) and promptly gives signal
  - Lifts only as much as needed



- Driver **taking** the pass “sets up the pass” by
  - Hanging back early in corner, to allow better exit speed, and/or
  - Takes a later apex to be in position for a quick pass (for some corners)

Credit: Central Indiana PCA



Porsche Club of America



PORSCHE