

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 Watkins Glen, 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.

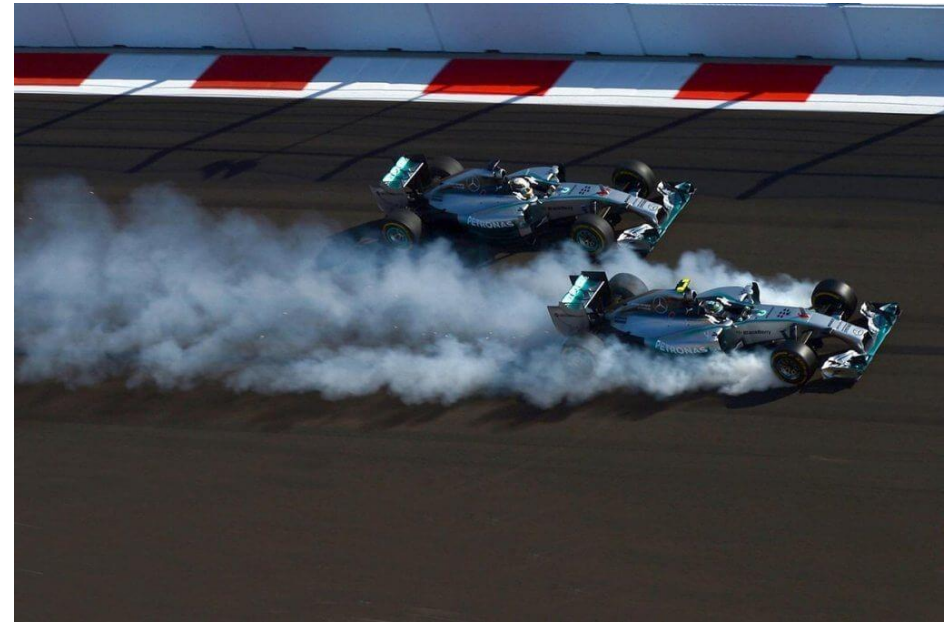
Trackside Classroom

Trail Braking

Mario Andretti: “Its amazing how many drivers, even at the F1 level, think the brakes are for slowing the car down.”



- The Learning Sequence
- Corner Entry
- Braking/Trail Braking
 - Watkins Glen examples
- Summary
- WG Questions & Turn by Turn



“High performance driving is all about the correct timing, application of pressure, and release of the brakes.”

-- Ross Bentley

NNJR “Health Warning”



- Some of these are ***not*** beginner techniques
- They may or may not work for ***you***
 - Application will take thought and practice
- Safety is the first part of “Safe, Serious Fun”
 - Only apply techniques that are “comfortable”



NNJR “The Learning Sequence”



1. The line
 - i.e. the right one for you and your car
2. “Corner exit car control”
 - Maximize exit speed—and safety
 - “Throttle Application Point”
3. Braking and entering the turn
 - Smooth transition from straight to throttle application point

Tips:

Carl Lopez: *Going Faster!*

- **Braking late is the last place to find speed**
- **Key is “End of Braking point”**



NNJR Corner Entry



1. Throttle to Brake transition
2. Straight line deceleration
3. Trail Braking (braking while cornering)
 - Most, but not all corners
4. Brake to Throttle transition

Carl Lopez: *Going Faster!*

“I spend more time coaching drivers on their brake release than anything else.”

--Ross Bentley



NNJR Common Braking Mistakes



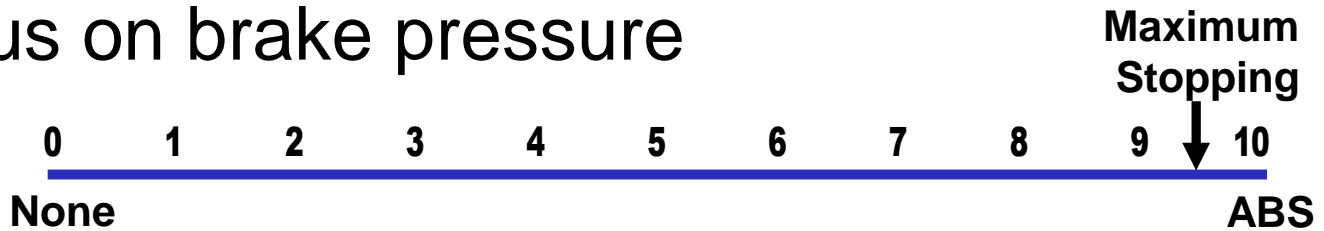
- Green and Yellow rungroups
 - Inconsistent braking point, brake pressure
 - “Jump” on and off the brake pedal
 - Too little pressure early, too much late
- White and Black rungroups
 - Too little pressure early, too much late
 - Jump from heavy brake to heavy gas
 - Trying to “brake late”



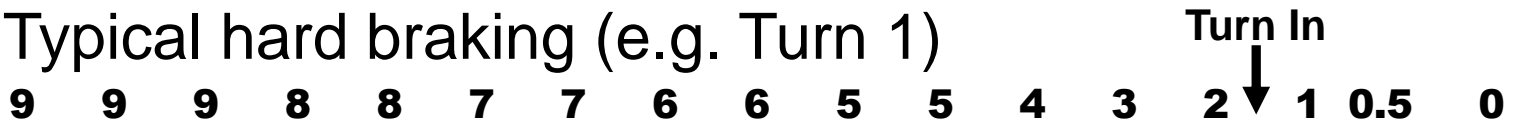
NNJR How to Improve Braking



- Focus on brake pressure



- Typical hard braking (e.g. Turn 1)



- “A string connects steering wheel & brake pedal”
- Focus on End of Braking (EOB)
 - Much more important than start of braking
 - Critical RP: same point, speed (+/- 1-2 mph) each lap
 - Be aware of brake pressure at Turn In
 - Should be the same each lap



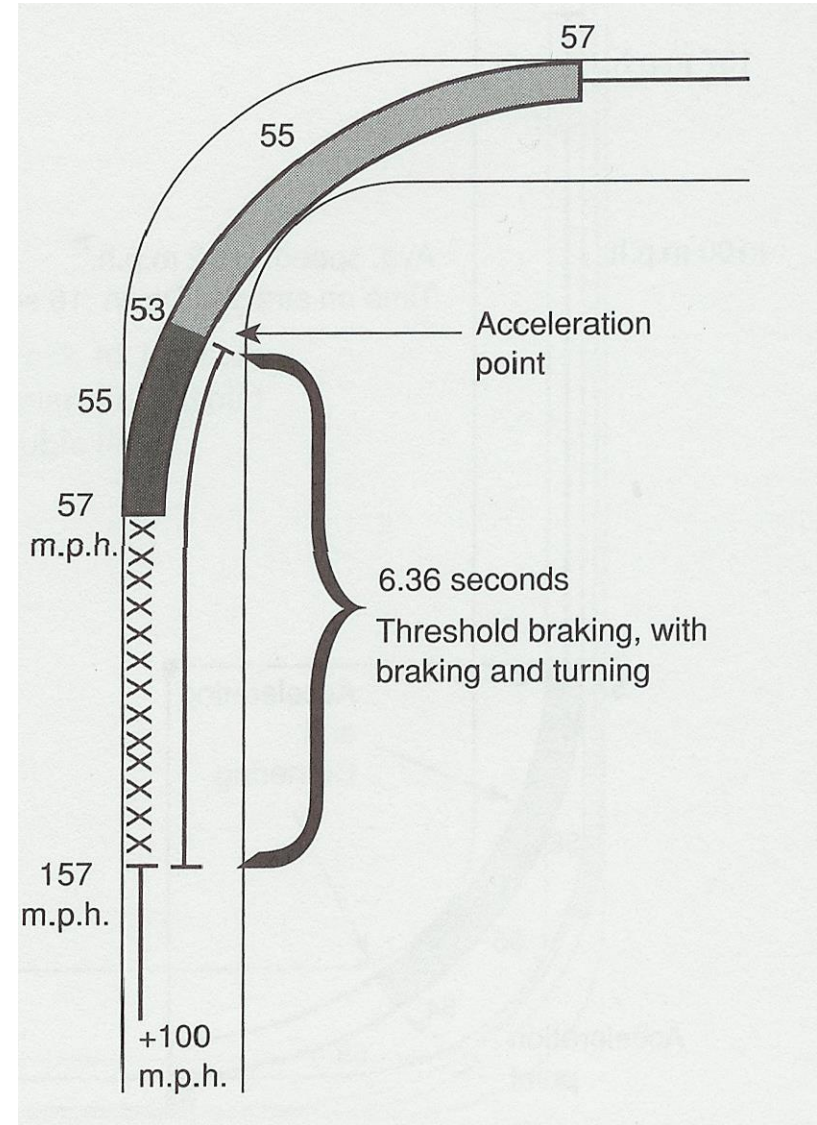
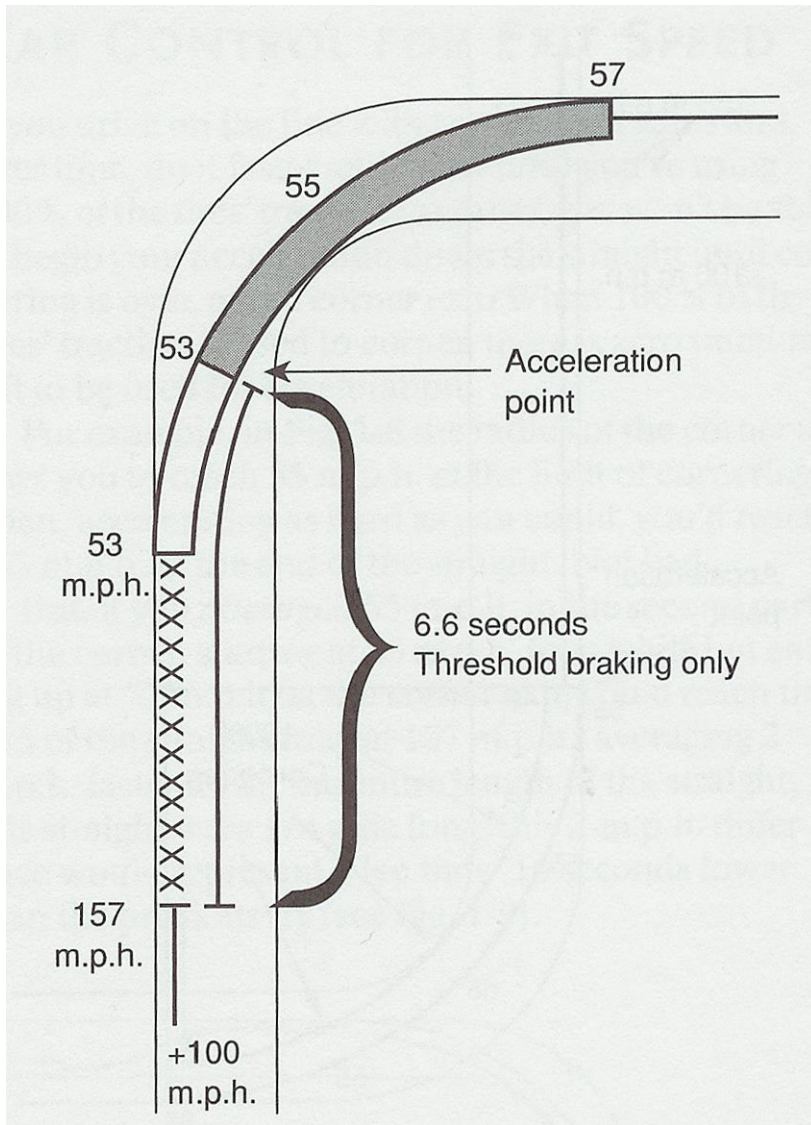
NNJR Braking “Late”



- Reasons why braking at the last possible moment is a bad idea
 - “Braking-to-acceleration” transition can adversely affect car balance the most
 - You can easily over-slow the car
 - Your (incoming) speed on the straight can vary
 - You must slow down to the right speed before the Throttle Application point
 - **Net: much higher probability of missing the line and the corner exit**
- Braking a little earlier and modulating to the correct entry speed gives up very little time—and is MUCH easier



NNJR Braking / Trail Braking



Trail Braking: How far after Turn In is EOB?



- When/how much to trail brake?
 - **Some corners a lot, others little or none**
 - Longer corner
 - Big speed change
 - Slower corner immediately after
 - Long time to transition before Throttle Application Point
 - **If your car can make the transition**
 - Older cars get nervous...or worse
 - Mid-engine cars => less trail brake
 - **If you can handle the transition**

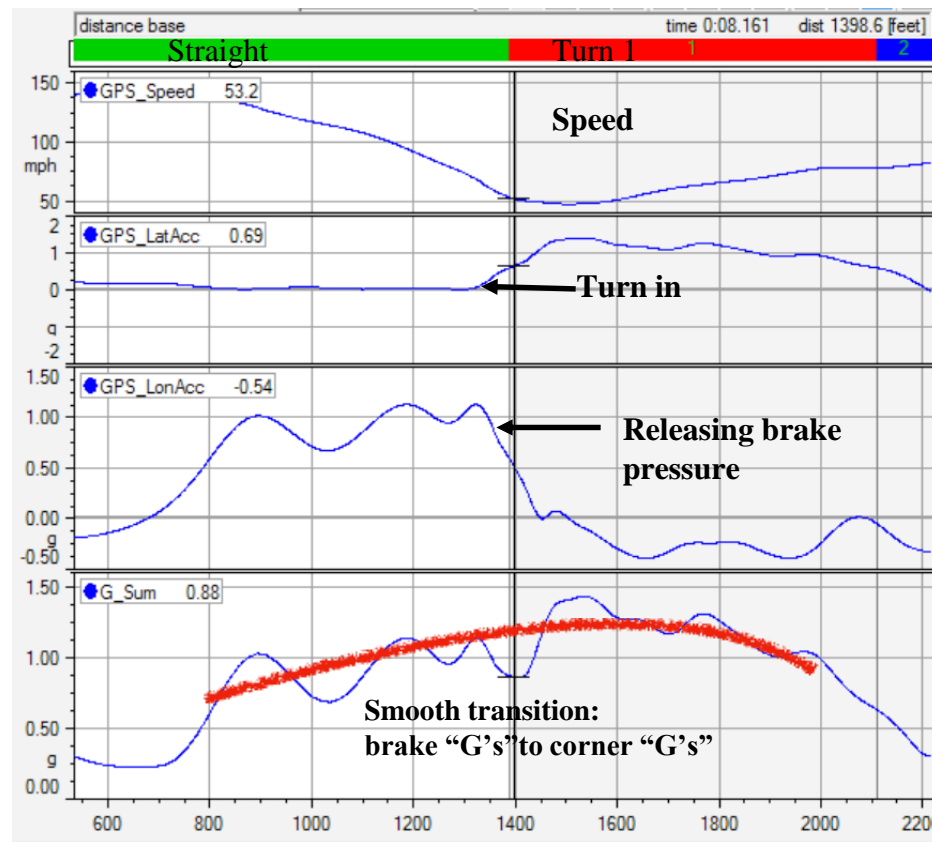
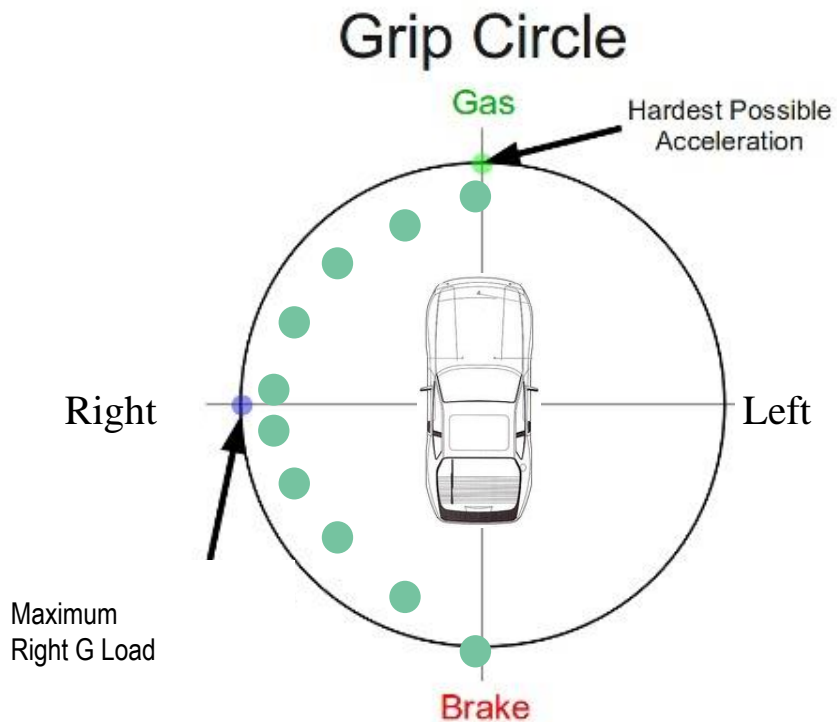


NNJR Watkins Glen

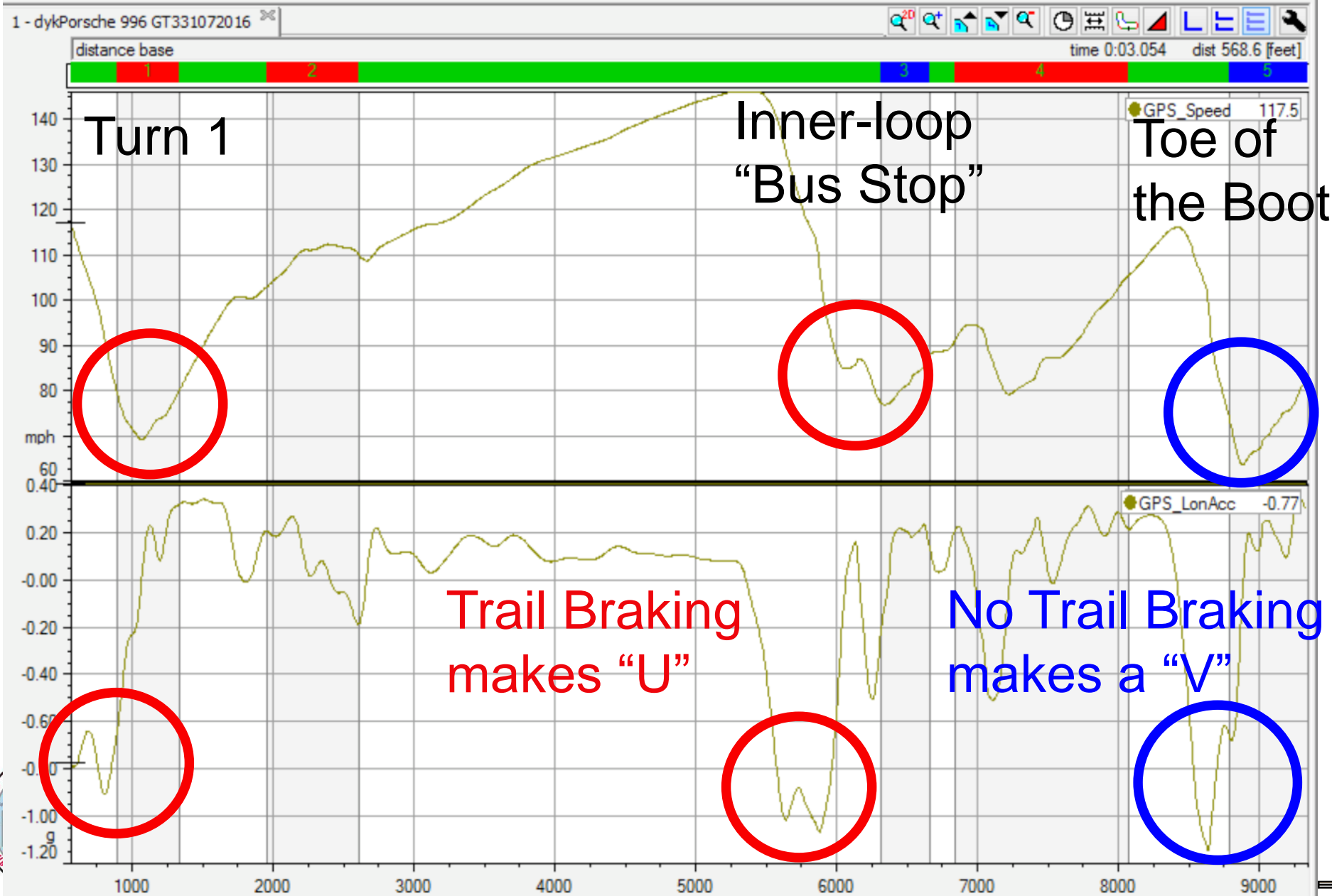


- All corners are fast
 - No “classic” trail brake corners
 - Turn 8 (“Heel”) is the closest
- Turn 1
 - Fast exit is the target
 - Banking helps the car turn
 - Small amount of trail brake at Turn In (“1” or “2”)
- The Laces (Turn 6)
 - Long, downhill Corner
 - Can trail in for long distance (some cars)
 - Smooth brake release is essential
- Turns 10 and 11
 - Very little, if any, trail brake (brake in straight line)





Types of Corners



NNJR Braking: Summary



- Focus on End of Braking
 - Avoid braking too late
- Smooth transition from brake to gas
 - Goal: imperceptible
- You are already trail braking!
 - Learn where to do more
 - Learn where to do less

