



Learn to Autocross, FASTER!

How to make the most of precious few runs

Moderated By
David Cook / Mazdaspeed Motorsports
Brian Ghidinelli / MotorsportReg.com

Expert Panel



Karen Babb
Multi-time National Champ

2011 SCCA Hall of Fame
Inductee

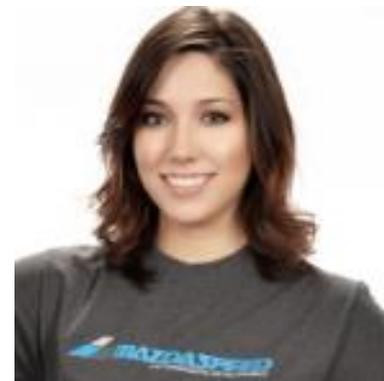
Co-Chair and Course Designer
for SCCA Solo Nationals



Neal Tovsen
Author of ConeCoach.com

Instructor for SoloPro Driving
Schools.

Six-time podium finisher at
SCCA Solo Nationals



Rachel Kerswill
Seven years of competition

2014 SCCA CSL National
Champion

Undefeated in class in the
2014 Championship Tours

Analytical Course Walking

(or, how to make the most of your time)

Karen Babb

Walking vs. Designing

- Design Process
 - Route Selection
 - Element Population
 - Fine Tuning
- Walk-through Process
 - Route Familiarization (Navigation)
 - Element Analysis (Calculation)
 - Fine Tuning (Execution)

What are your priorities?

1. Navigation (Find the route, because DNF's suck)
2. Calculation (Figure out the elements, apexes, etc.)
3. Execution (Make your plan to optimize the car)

Navigation

- Familiarity Breeds Confidence
 - Know where you're going, what you are trying to do
 - Looking ahead while driving shouldn't be spent on trying to find the course; it should be used to put the car in the best place at the highest possible velocity, since where you look is where you'll go
 - At speed it will all come up very very fast
- Be Ready for Anything
 - The designer may be experienced or new, tricky or vanilla, a fan of many cones or of very few, and/or a deviant sadistic wacko 

Navigation

- Basics
 - Planning: how many walk-throughs do you have time for?
 - 3 or more is probably enough; plenty of people prefer twice that many
 - Typical walk-through of a large course can take 15-20 minutes
 - Focus on the cones and where you're supposed to go
 - Put the phone away/off/muted
 - Don't converse with others about anything but the course
 - Look up and ahead while walking
 - Notice whether it's easy to pick out the route in a hurry
 - For places that are hard to see, stop and study them
 - Don't look at the map unless you have to

Navigation

- Sections
 - Designers frequently think in sections, not in gates or cones
 - For example: slalom, big sweeper, set of offsets, esses, straight, whatever
 - It's easier for you to remember a half-dozen or so sections than 150 cones or 35 turns
 - You may perceive different sections than the designer thought of
 - Pause briefly at the start of each section and try to visualize going through it on the correct route
 - Note how the sections connect to each other
 - Visually identifiable?
 - Easy/benign or setup-critical? (more on this later)

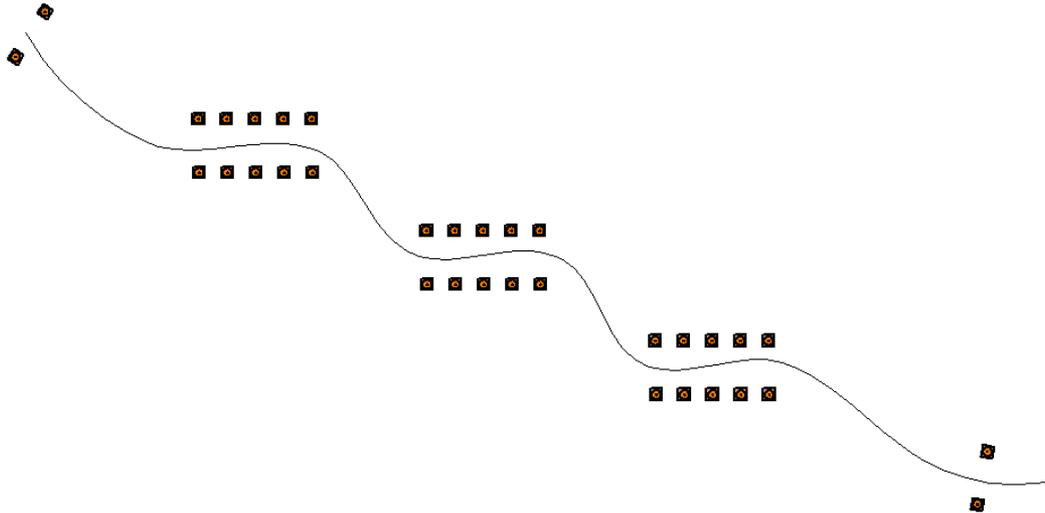
Navigation

- Other characteristics
 - Options (e.g. optional-side slalom entry)
 - Which side do you choose and why
 - Sometimes designers make the choice hard to figure out (e.g. a difficult entry implies an easier exit, or vice versa). Sometimes they don't.
 - What's key if it is not an obvious choice is to compare what came just before to what comes just after, and decide which is more important to your elapsed time
 - A small light car may be better off with a different choice than a big powerful car
 - You may not be able to decide until walk-through #2 or 3; walk each one and see what it "feels" like
 - Sometimes you have to try each side on your 1st and 2nd runs, then pick one for your 3rd and onward
 - Or just sandbag and see what others decide to do 😊

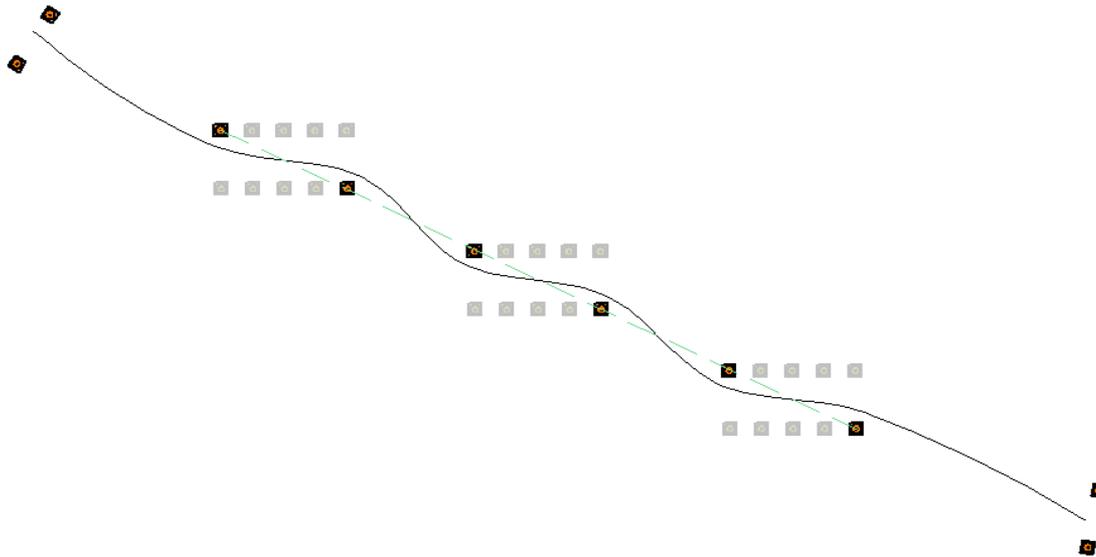
Calculation

- Critical Dimensions and Attributes
 - Negative or positive lateral cone offsets
 - Turn widths (or lack thereof)
 - Some designers like to make a turn hugely wide when the actual optimum line is quite narrow (the “give them room to hang themselves” approach)
 - Surface camber – how is it used, how will it affect the speed you can carry
 - Surface texture changes – gravel/blacktop, old/new, coarse/smooth
 - Sand/gravel buildup, now or anticipated, and/or puddles
- Key cones that constrain car placement
- Meaningless cones that are there for distraction

Disguised elements can look like one thing, be another



See what's really there, ignore what is meaningless



Simplify what you focus on so you can remember it better

Calculation

- Room for error with minimal time cost (and safe margins) anywhere?
 - Wide sweepers with generous exits
 - Large open gaps from one element/section to the next
 - If you're in the mood to be a little optimistic, these are the places
 - You may learn your car can do more than you think
- Tight elements
 - Sometimes you have to go slow to be fast
 - Plan to be patient and not overdrive them

Execution

- Sacrifice and Gain – some designers specifically plan this
 - Give up speed at one point to gain it in another downstream
 - Optimize setup for what's coming, especially if it's a fast section
 - Knowing what's coming and looking ahead are critical
- Make a Plan
 - Focus on car placement for the first run
 - Try to anticipate braking, shifting, throttle modulation
 - Unless, of course, you're a pure SOP driver 

Execution

- Plan for adjustments between runs
 - Focus on elements you're not sure about
 - Be prepared to only try to "fix" a couple of things at a time
 - Typical adjustments:
 - Power on sooner, off later (or not)
 - Reduce/eliminate (or add) brake points or lifts
 - Set up (orient) the car earlier (e.g. wider entry or later apex on exit)

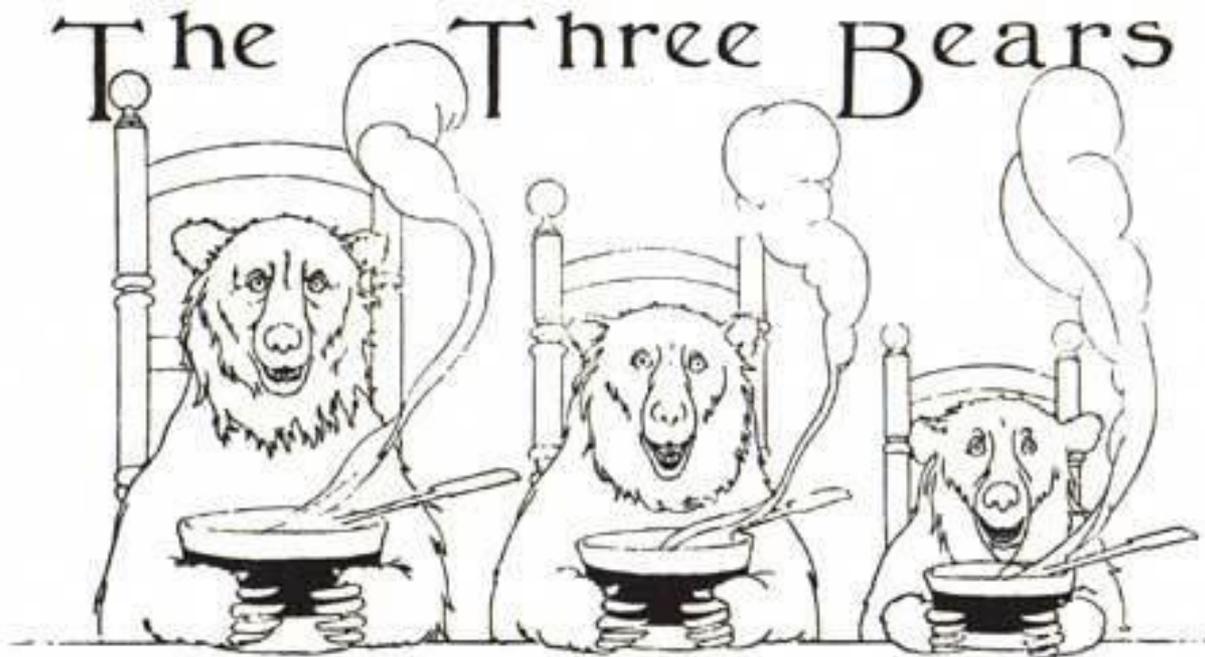
Other thoughts

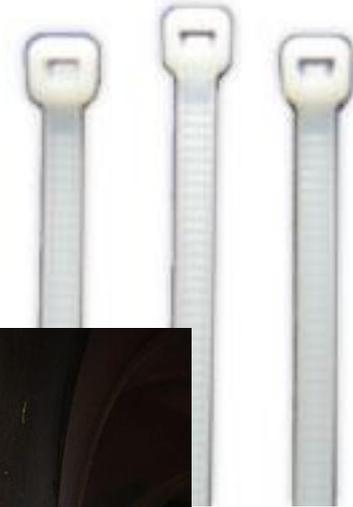
- Walk the exit all the way to the end at least once to be sure you know what to do there (avoid silly off-the-clock DNF's)

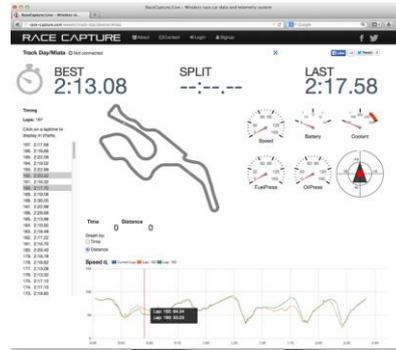
Data Logging for Autocross... Just Right

Neal Tovsen









AUTOSPORT LABS







HARRY'S LAPTIMER



RaceChrono



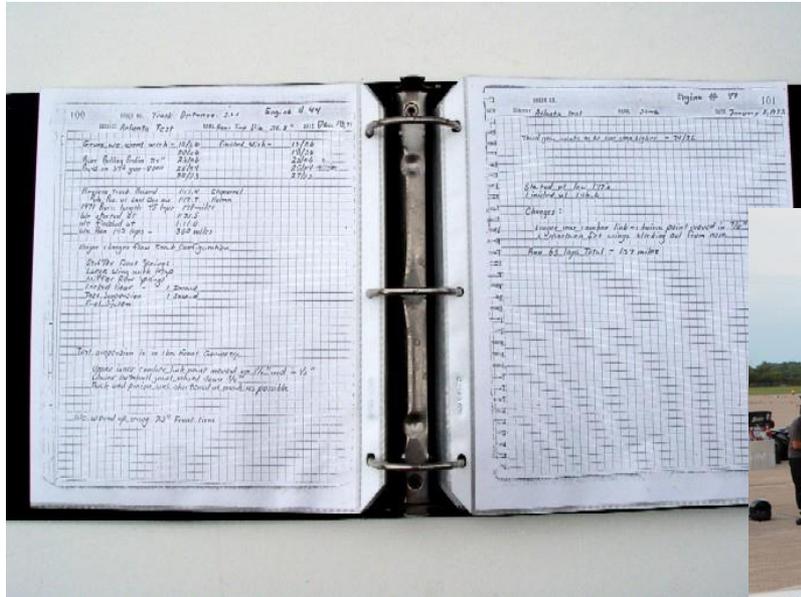
MAXQDATA™
DATA ACQUISITION

Later...?



No Matter What You Use

Record Context



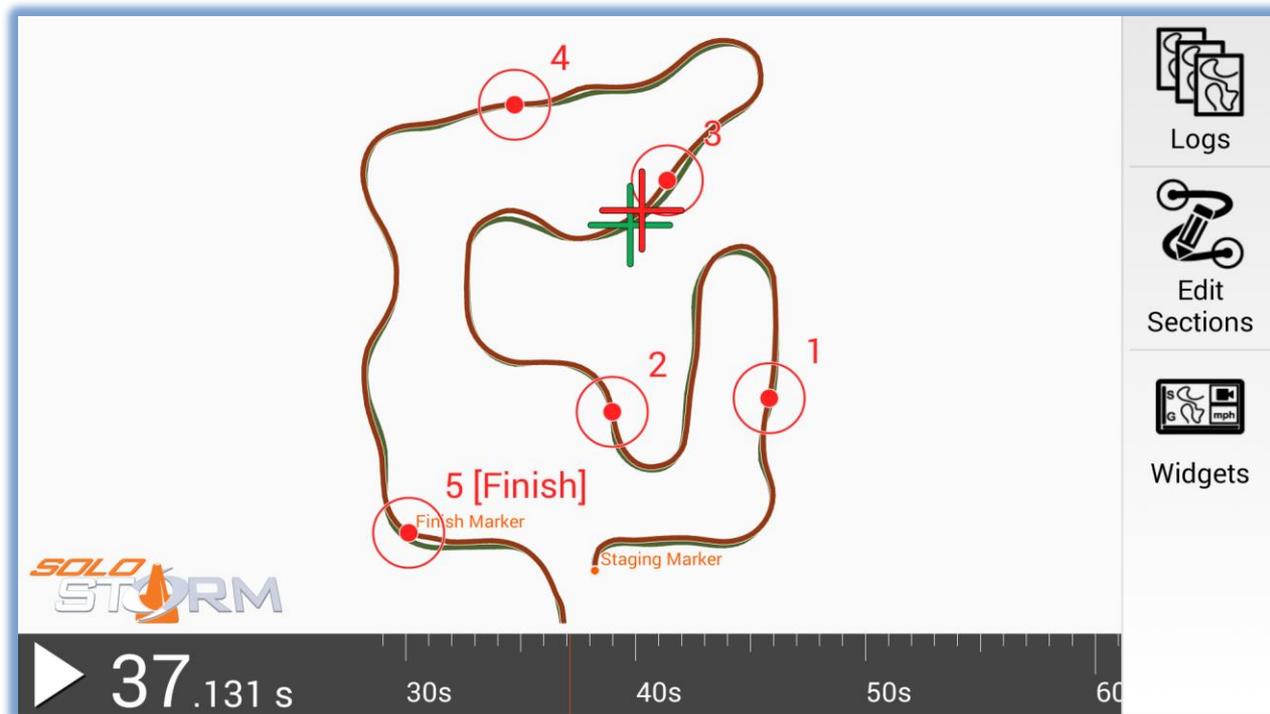
Corroborate



Using a Data Logger

First Run:

1. Set start/finish gates
2. (optional) Set sectors

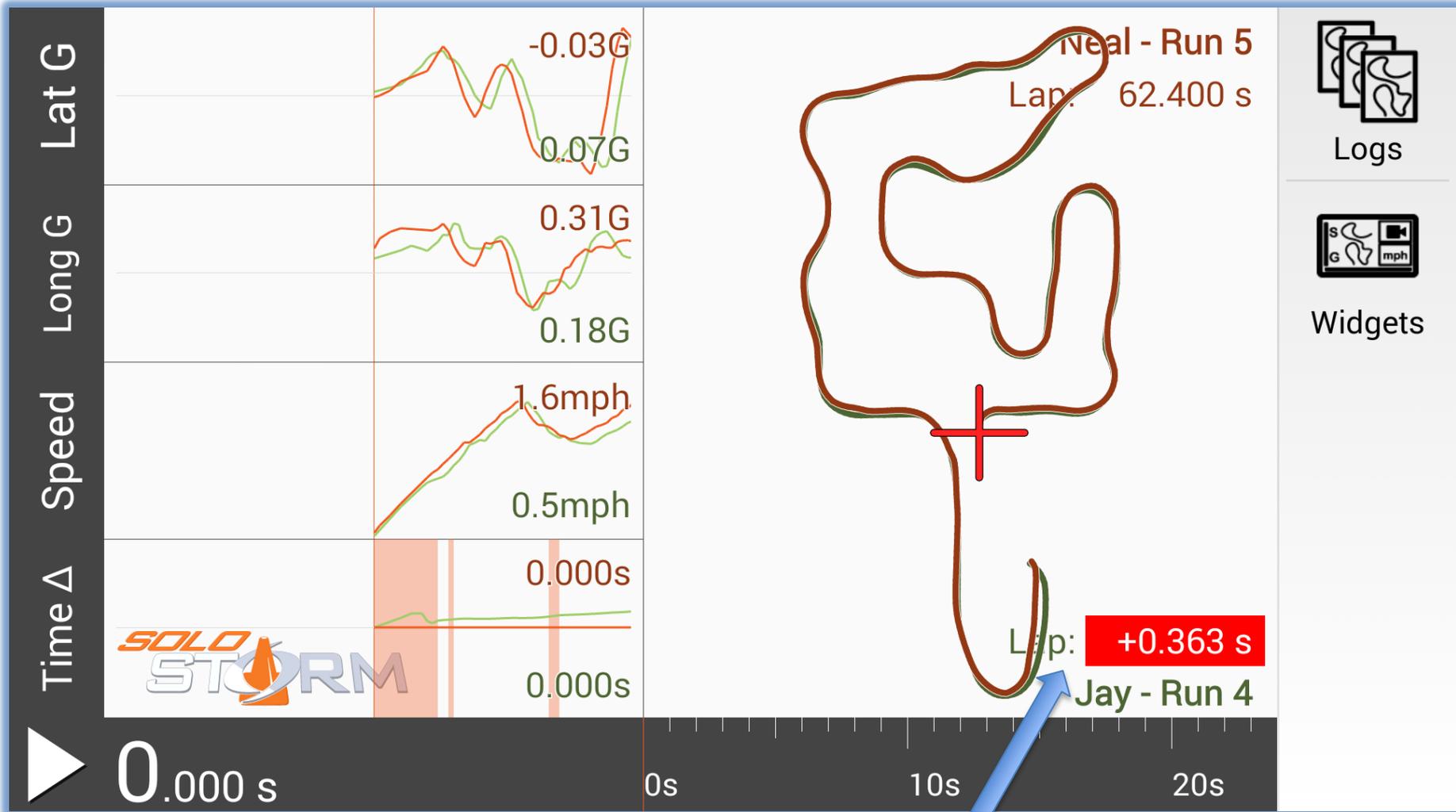


Using a Data Logger

Each Run:

1. Determine important “events”, fast
 - Time Slip (DL1), Time Delta (SoloStorm)
 - Sector times
 - Playback
2. Figure out why
 - MPH
 - Lat/Lon G

(Let’s see this in practice...)



Jay slower by only 0.363 over the whole run

(0) Vertical line means "now," matching position on map



(4) 11mph faster!!!

(1) BIG orange band...scene of the crime...

(3) WUT?? Green gains 6 tenths, 2 corners later!?

(2) We were even back here

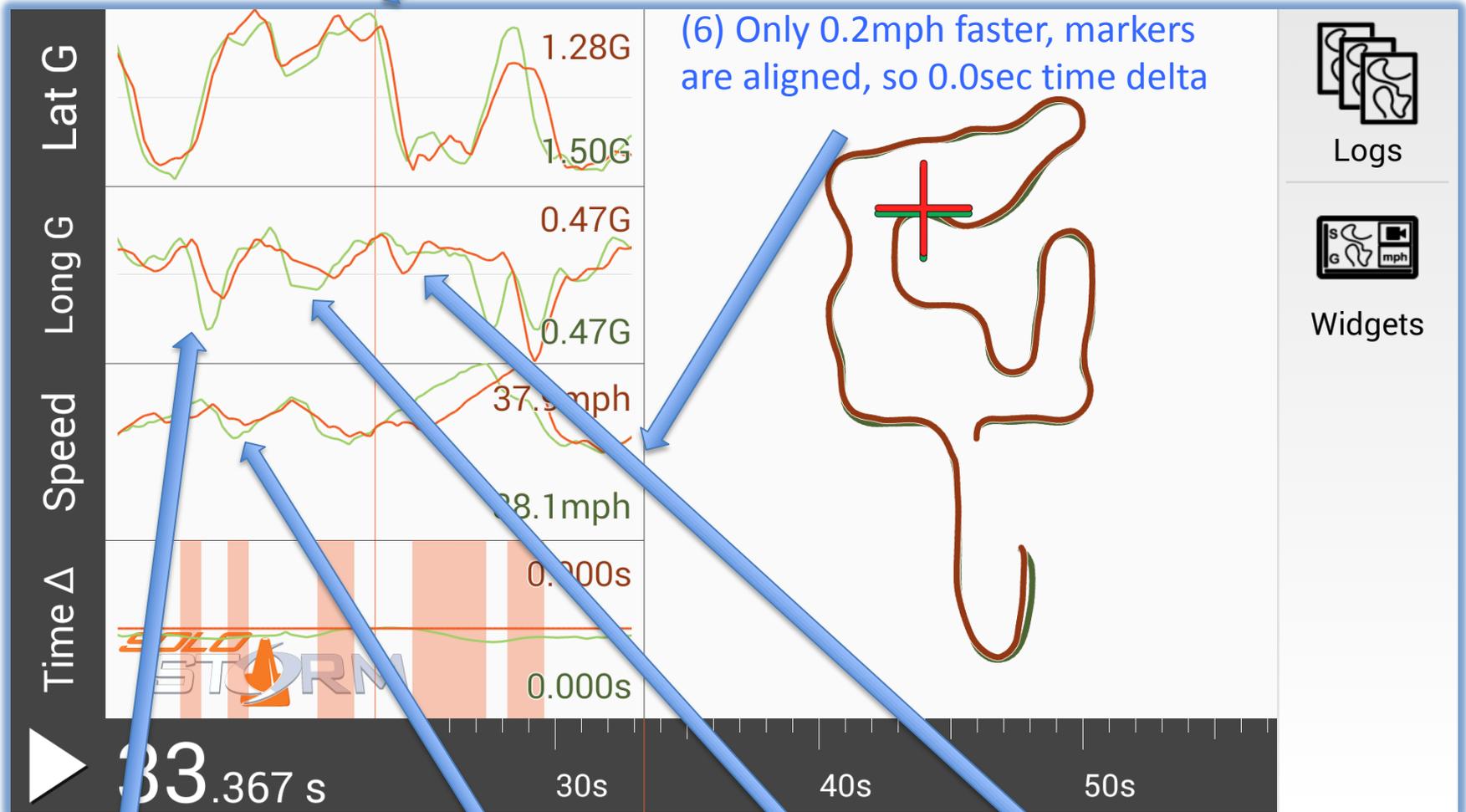
ELEVEN miles per hour!

SIX TENTHS in FIVE SECONDS!

Neal was actually SLOWER everywhere else!

(\$@%#!!!)

(5) We moved backward in time, to when it all began



(6) Only 0.2mph faster, markers are aligned, so 0.0sec time delta

(7) Green braked harder way back here...

(8) ...and gave up some speed...

(9) ...but got on the gas earlier...

(10) ...while red had to Correct and get out of the gas!

Gear

- Find creative ways to be objective
- Video is intuitive, easy, and inexpensive
- Phone/Tablet + GPS nugget = great bang-for-buck
- Go to pro level to add sensors

Analysis

- Get to the scene of the crime FAST
- Look for clues in MPH, then lat/long
- Sometimes the genius move was several corners earlier



Working with a Teammate In Solo

Rachel Kerswill



Working with a teammate

- Why team up?
- Choosing a partner
- Making the most of a partnership
- Drawbacks of having a teammate

Why team up?

- Financial benefit
- Emotional and mental support
- Become a more adaptable driver
- Access to a long-term coach that knows your individual strengths, weaknesses and driving style

Choosing the right partner

What are you hoping to gain?

- Which role will you play?
 - Teacher, Student, Even Match
 - New techniques or improve upon current ones?
- Financial considerations
- Can you spend extended periods of time with this person? Does his/her schedule work with yours?
- Ask others to ride or drive with you and give you input. Offer to help a less experienced driver.



Making the most of a partnership

- Planning and Car Prep
- Practice
- Course Walk
- During an Event
- After Events and In Between Events

Planning and Car Prep

- Make a financial plan.
- What changes need to be made to the car?
- What events will you compete at?
- What are your goals?
- Create a timeline for events and work that needs to be done on the vehicle.

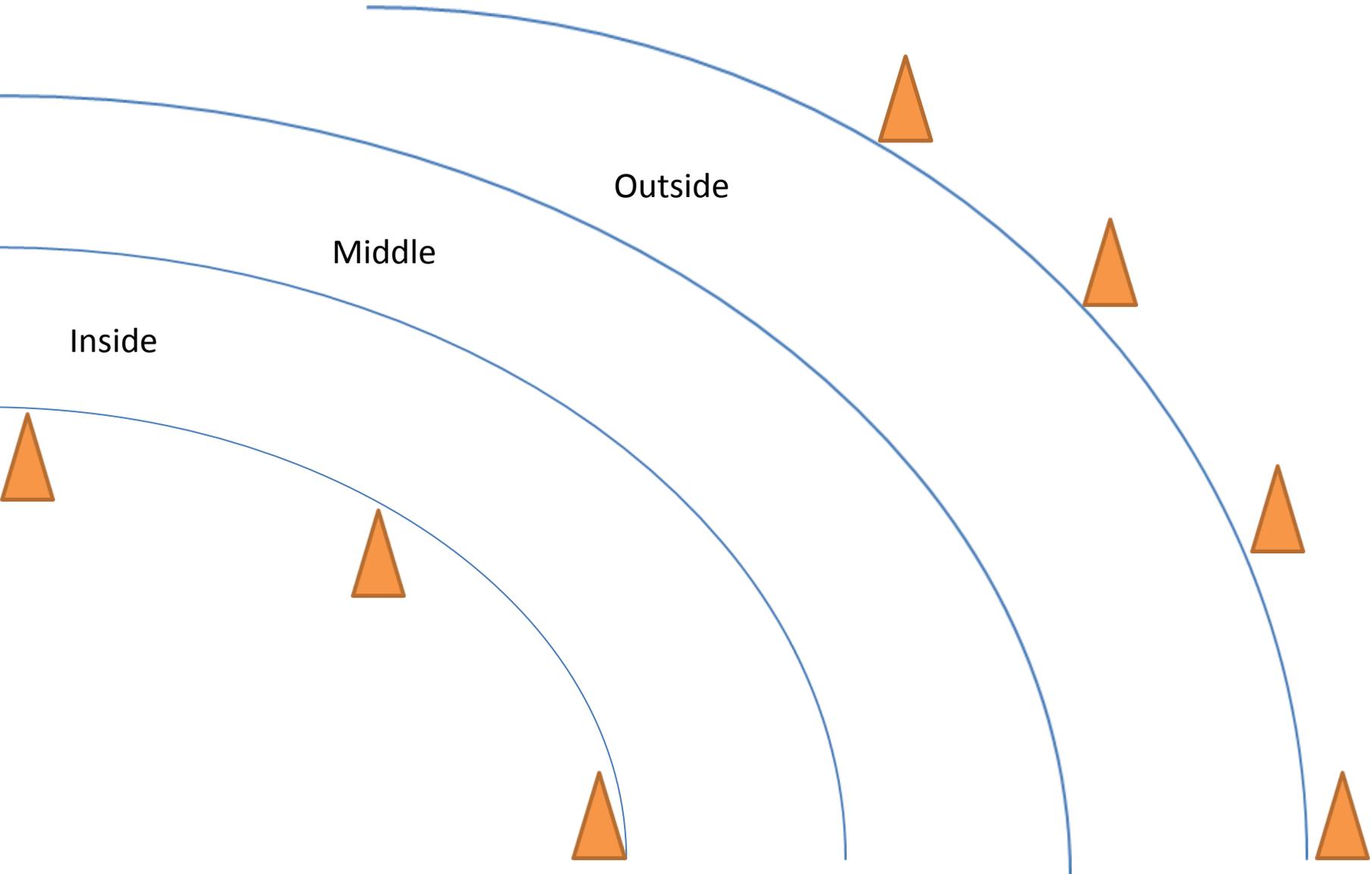
Practice

- Test and Tune
 - How does the car feel?
 - What adjustments can be made?
 - Basis for comparison on times.
- Local Events
 - Learn strengths, weaknesses, driving style of your partner.
 - Working with data.
 - Try different setups.
 - Take risks, try different techniques and get feedback from a co-driver.

Course Walk

- Discuss Lines
 - Debate best approaches, may be different depending on driving style.
 - Use a communication strategy that is simple and easy to remember while still offering a precise idea of where to be when moving through a course at speed. One strategy is splitting the course into thirds.
- Key Cones
- Better Communication = Better Memorization
- Motivation
 - Motivation to walk the course, keep your head in the game and visualize the course before driving it.

How to communicate line



During events

- Help with Focus
- Setup Adjustments
 - Tire Pressures, Suspension Adjustments
- Feedback about runs from outside the car.
 - Outside perspective of where you may be off line or where you may be able to get more speed.
 - Can remind you about specific things to fix.

After and in-between events

- Compare Data and Videos
 - Where was your partner faster? What did he/she do differently?
- Plan and pick specific things to work on at future events.

Potential drawbacks

Teaming up sounds great! So what's the catch?

- Wear and Tear on the car
 - Example: Tire Wear
- Financial Disagreements
- Increased Competition
 - Are you ok with your co-driver beating you in your car?
- Time Constraints
- Different Preferred Setups
- Personality Conflicts

Three Takeaways

1. Choose a partner you enjoy spending a lot of time with and can communicate effectively with. Consider what you want to get out of a partnership and what role you will play.
2. Make the most of your partnership by taking the time to plan, practice, and communicate strategy during events with your partner.
3. Working with a long-term co-driver is not for everyone. But keep an open mind! There are many other ways to work with fellow competitors in the Solo community.

Questions?



Contact Info

- Karen Babb

caseyb67@comcast.net

- Neal Tovsen

conecoach.com

neal@conecoach.com

- Rachel Kerswill

<http://rotorchick88.wix.com/plus2racing>

rotorchick88@gmail.com