Southern Indiana Region

SPORTS CAR CLUB OF AMERICA

AUTOCROSS INTRODUCTION

Feb 2, 2018

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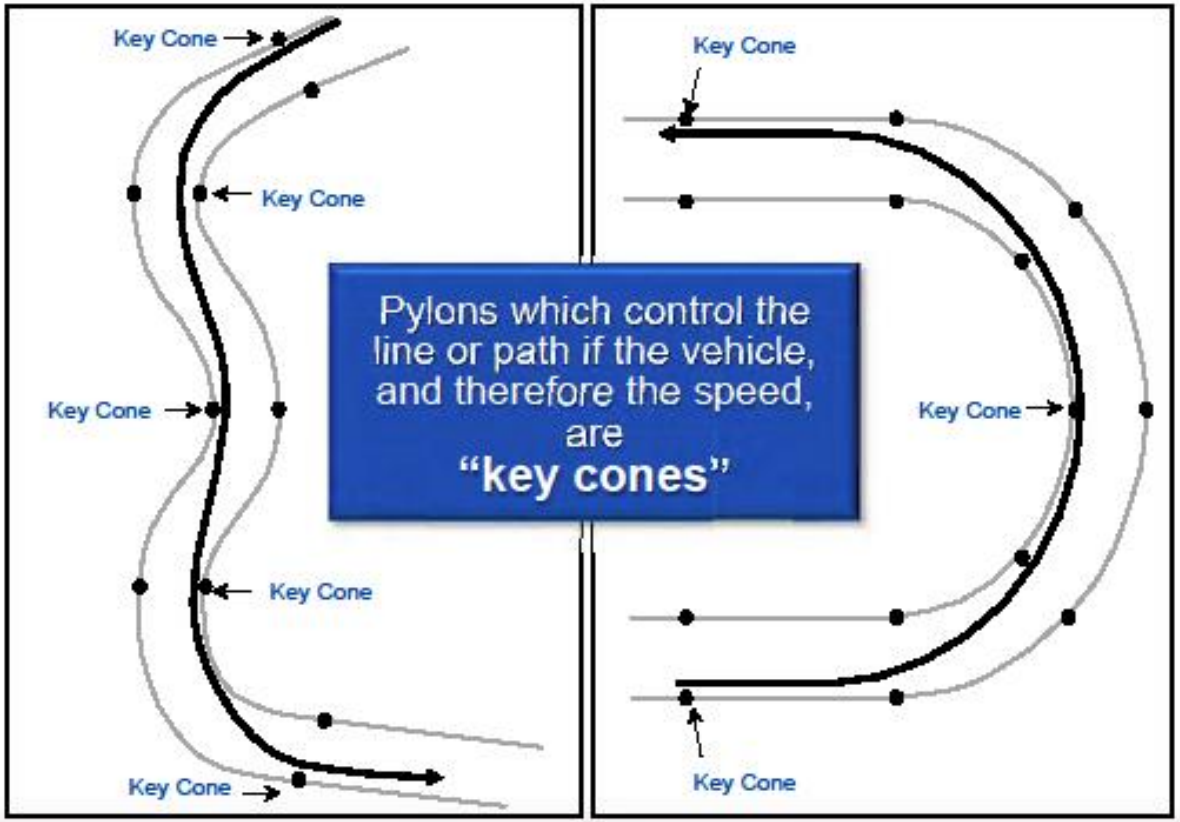
www.sirscca.org

Solo Course Design 2014

Houston Region SCCA
Sports Car Club of America

Using Roger Johnson's Solo / Autocross course design examples to see course plans of attack.

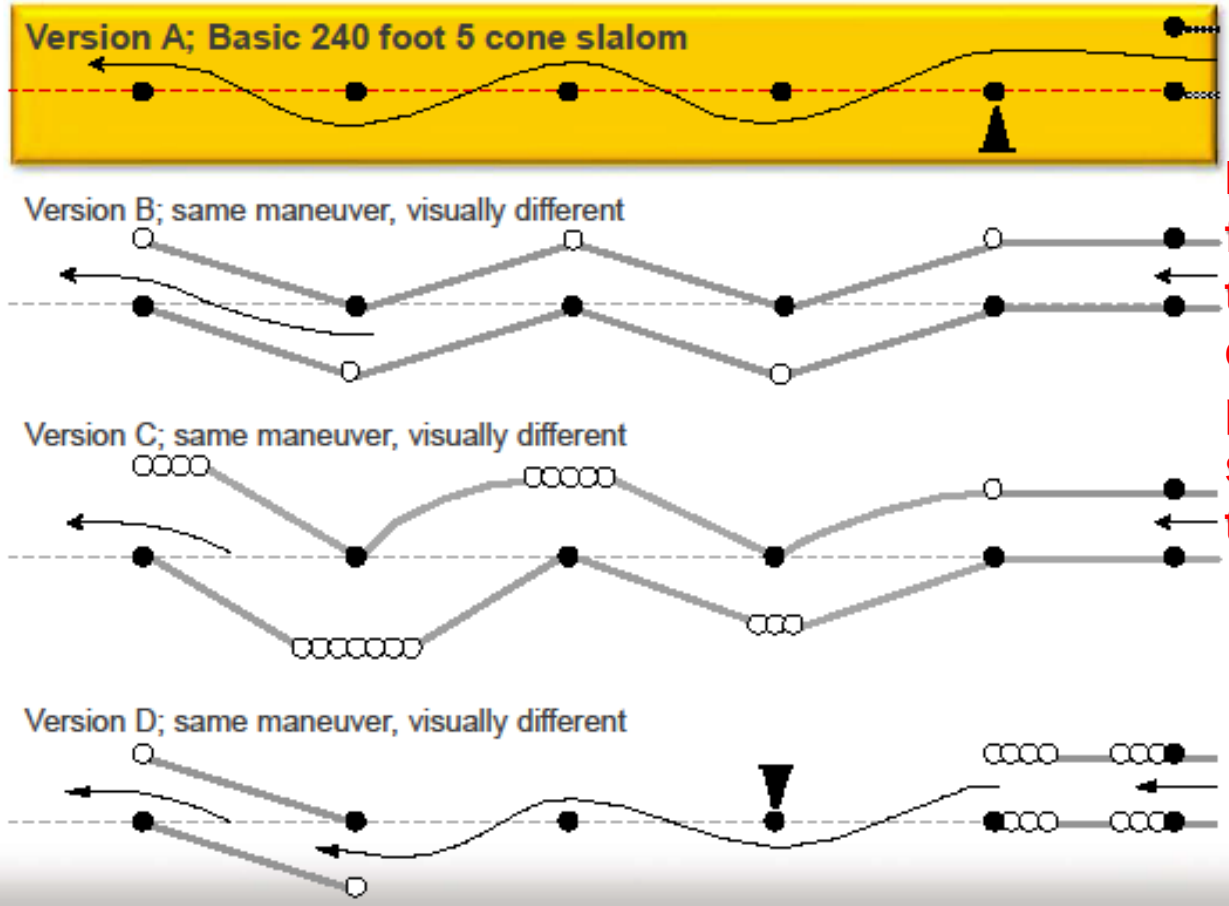
Locating Key Cones



Don't let a "sea of cones" camouflage the few critical cones!

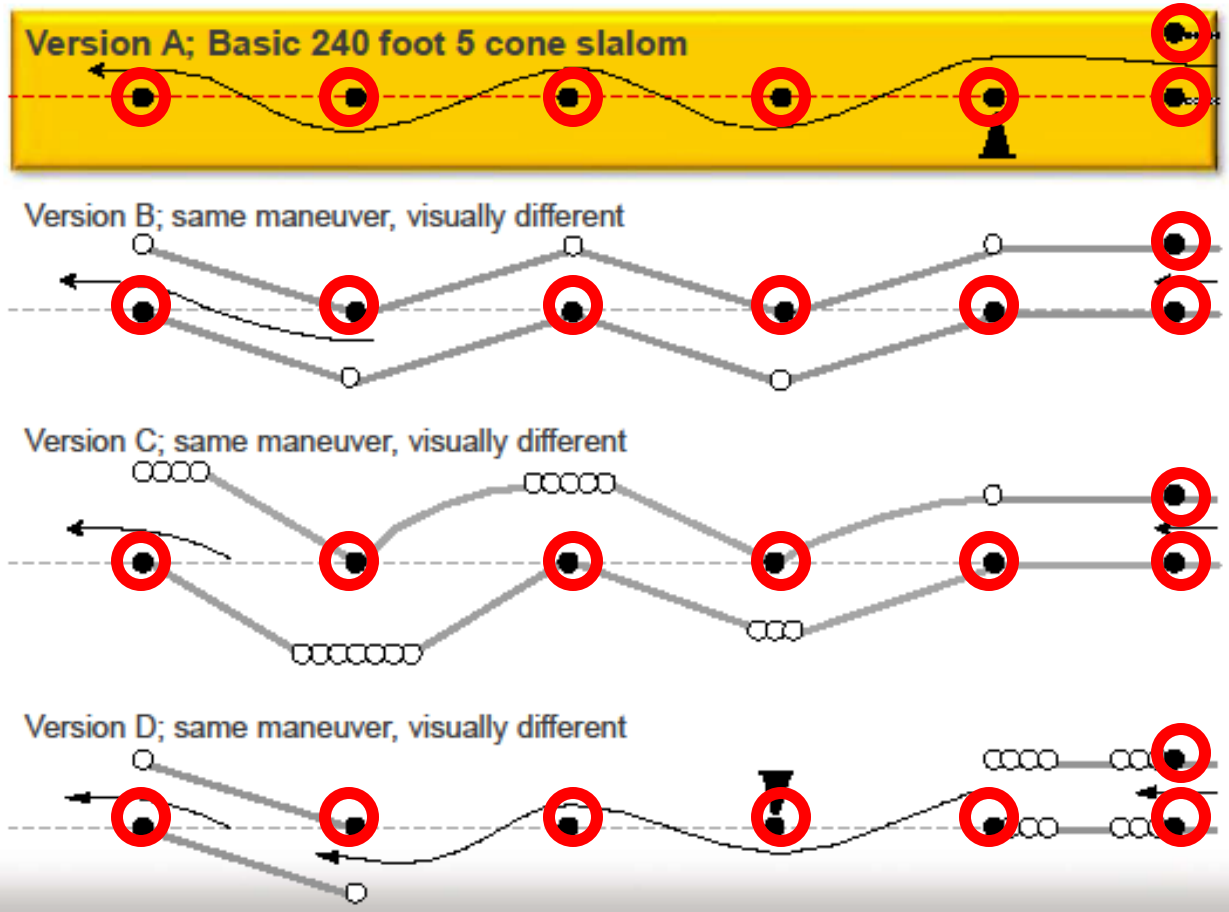
When walking the course, identify the few cones that will control your path and speed.

5 Cone Slalom



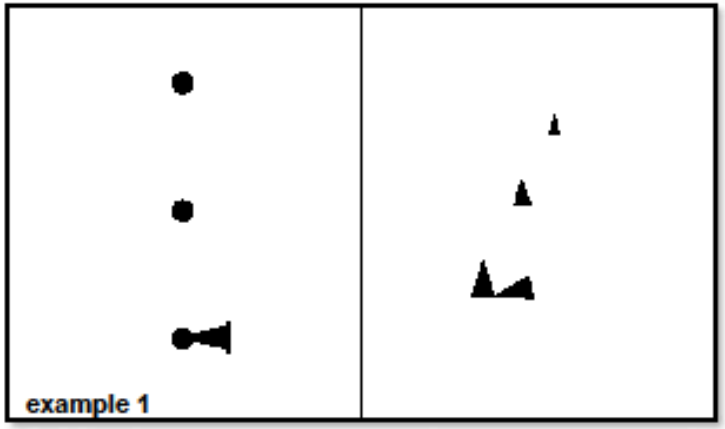
Identify the few cones that will control your path and speed. Ignore the others!

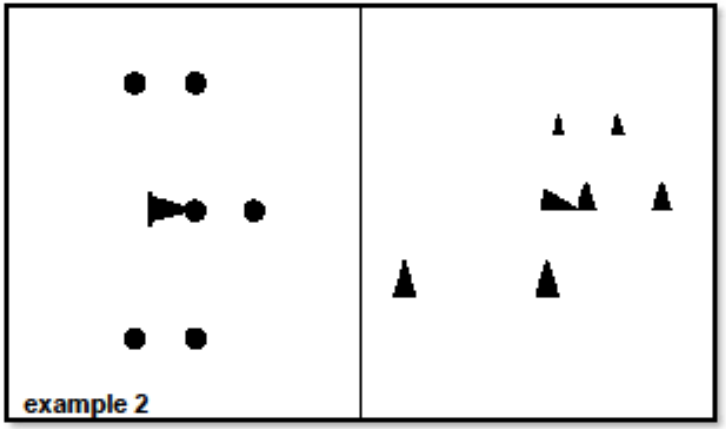
5 Cone Slalom

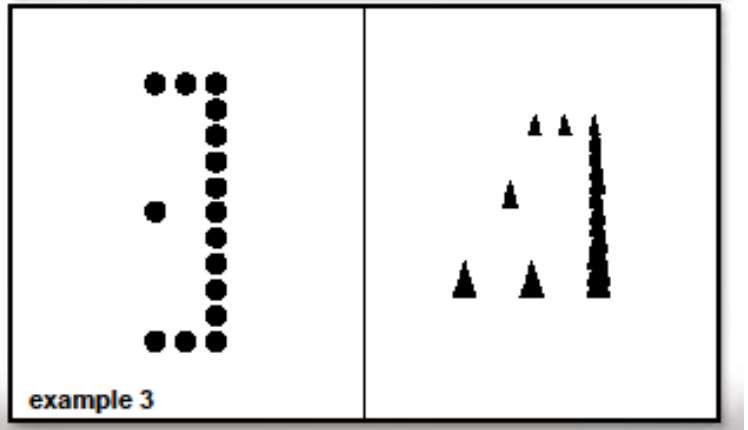


Which is easiest to See?

All three of these are a slalom - the same maneuver; **Example 1** will be the easiest to see







Your view is critical.
You should be looking 2 or 3 "gates" ahead.

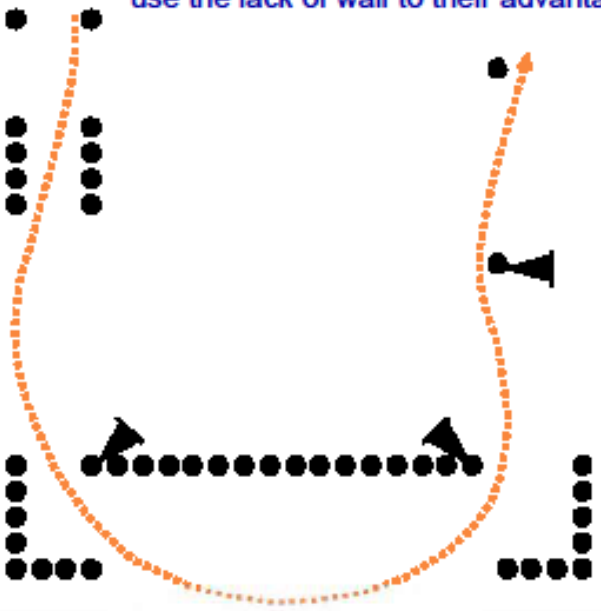
You should visualize your approach from your driver's seat

The Brainer

the intent of a "brainer" is to allow a fast line through, but give it the visual effect of a slow maneuver. This will then give the competitor a reward, or a "doggy bone" if you prefer, for figuring it out.

The Brainer

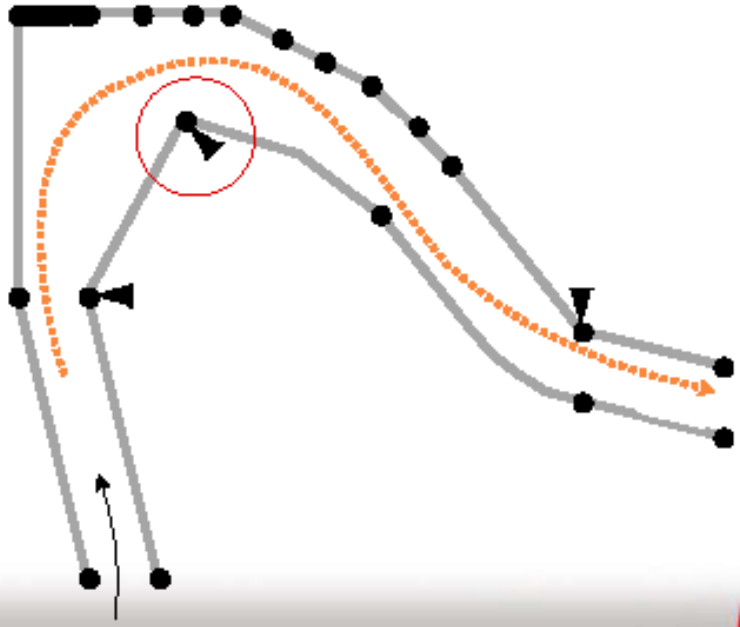
The wall at the 180º will tend to make an unwary competitor square the corner out. The driver who looks carefully will round the corner out and use the lack of wall to their advantage



note lack of wall here

The Brainer

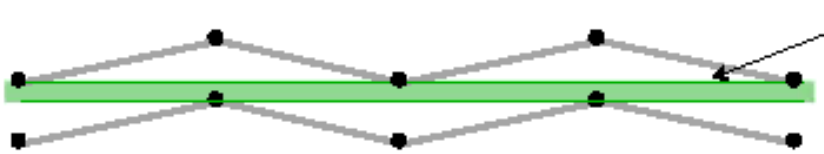
Competitors that don't "read" the course tend to drive cone to cone. The indicated cone will tend to pull in a driver who has not thought this one out. The fast line is to stay wide to make a sweeping turn.



Utilize "the Gap" to Help Control Speed

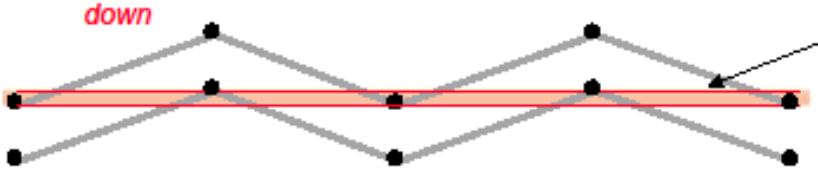
Use either easy or difficult maneuvers to speed up or slow down a course without disrupting the flow

Version "A"
Speed things up



*By increasing this **gap**, you will effectively **increase the speed** of the maneuver. A small increase (e.g. one foot) will have a surprisingly large effect*

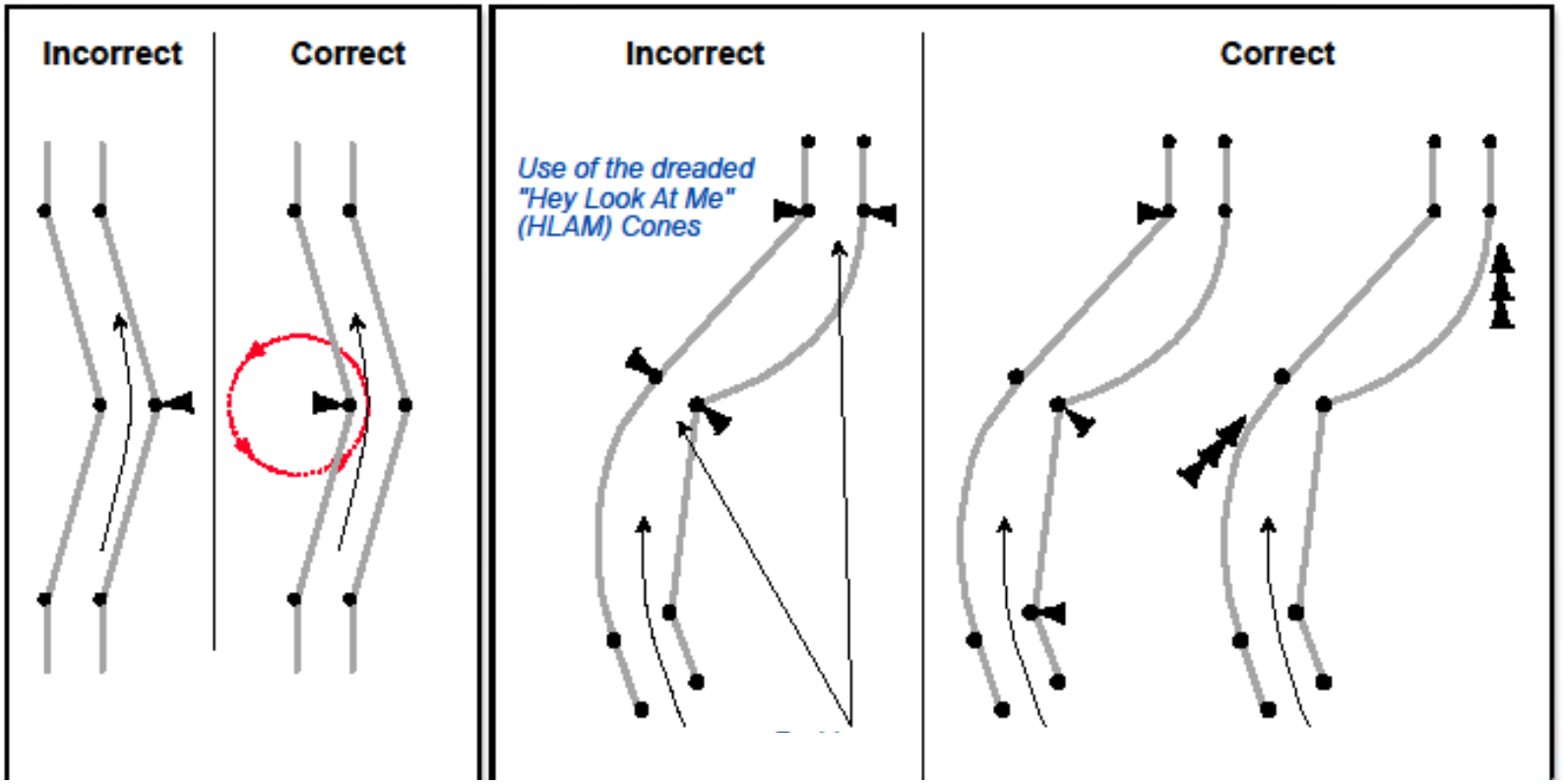
Version "B"
Slowing things down



*By increasing this **overlap**, you will effectively **decrease the speed** of the maneuver. A small increase here will also have a surprisingly large effect*

Choose the shortest route possible.
Don't move off a straight line if you don't have to.

Correct Use of Directionals and Pointers Cones



Pointer Cones should draw your attention to where you want to go.
"If placed correctly, the car will be "turning around" the pointer."

Autocross Introduction

- Identify the few cones that will define your path.
- The shortest path will be the fastest.
- Ignore the other cones.
  - We tend to drive in the direction we look.
  - Therefore, don't look at unimportant cones!
- Consider where you should give up speed to go faster ……
  - 400 ft @ 40 mph (6.818 sec) turning to 600 ft @ 45 mph (9.091 sec) = 1,000 ft in 15.909 seconds
  - 350 ft @ 40 mph (5.970 sec)+ 50 ft @ 35 mph (0.974 sec) turning to 600 ft @ 50 mph (8.182 sec) = 1,000 ft in 15.126 seconds
- Be smooth! Abrupt acceleration, braking, or steering may cause you to loose traction. Drifting or spinning tires is not fast.
- Two states: Braking or Accelerating, but be smooth!

Autocross Technical Introduction
Driving Strategies (1 of 3)

Improving your vehicle's autocross performance capability can be very satisfying, but unless you use that capability efficiently your run times will be less competitive than they could be. We'll cover vehicle changes, effects, and consequences later. This segment, Driving Strategies, will focus on the choices and plans you should make as you walk and then drive course:

- **Cornering**
- **Slaloms**
- **Transitions**
- **Trade-offs**

Because I've been autocrossing for a number of years and frequently greet our newer SIR members, I get a lot of questions about how drivers might improve their times. I'm not a consistent winner, but I have observed others, who are consistent winners and I believe I understand some of the keys to their success. I have also experienced significant run time reductions when I appropriately put these strategies into practice. Along with these standard strategies, my contribution to this instruction is my application of physics, trigonometry, and algebra to provide a few concrete, measured examples of just how much time these strategies can take from your total run time.

Autocross Technical Introduction
Driving Strategies (2 of 3)

Sports Car Club of America

Experienced drivers often give these pieces of advice without context or explanation:

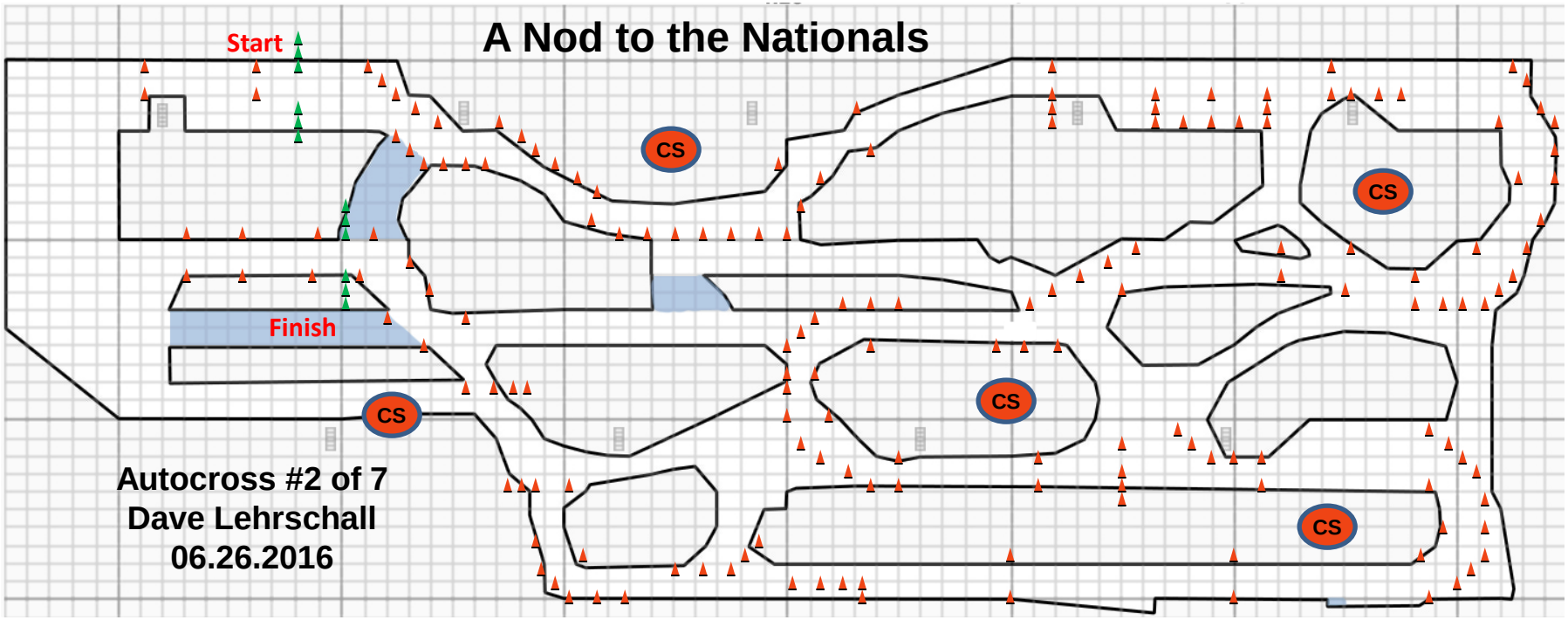
1. **"Get as much seat-time as possible."**
2. **"Learn where to go slower, to go faster."**
3. **"Stay in 2nd gear."**
4. **"You should be on the accelerator or the brake."**
5. **"Be smooth."**
6. **"Walk the course multiple times."**

1. **Everyone benefits from "seat-time" if that practice time is focused on competitive skills and strategies, and not on reinforcing bad habits. Experience in pushing your vehicle to its current capability limits will teach you how to "feel" these limits and how to take the appropriate corrective actions. Course run-time improvements will come with these skills and strategies.**
2. **Occasionally, we all get greedy and run too fast in course segments that cost us speed opportunities to follow. For example, if I have a 400 ft straight segment going into a 90-degree, 125 ft radius turn, and then going into a 600 ft straight segment we can compare speed strategies. We can maintain an average 40 mph and cover the 400 ft in 6.818 seconds, the turn's 196 ft in 3.347 seconds, and increase our average speed to 45 mph to cover the 600 ft segment in 9.091 seconds for a total of 19.256 seconds. However, if we slightly "lift" (our accelerator foot) and decrease our entry speed into the turn to allow a faster turn exit we can have better results. We could maintain the average 40 mph to cover the first 350 ft in 5.970 seconds, lift and run the next 50 ft at 35 mph in 0.974 seconds, run the (now late apex) 206 ft curve at an average of 42 mph exiting at 47 mph in 3.344 seconds, and finish the 600 ft segment at an average 52 mph in 7.867 seconds for a total of 18.155 seconds. Choosing to "lift" and go slower in a short stretch allows us to setup and run the longer stretch faster and reduce our time for these segments by 1.1.01 seconds.**

Autocross Technical Introduction
Driving Strategies (3 of 3)

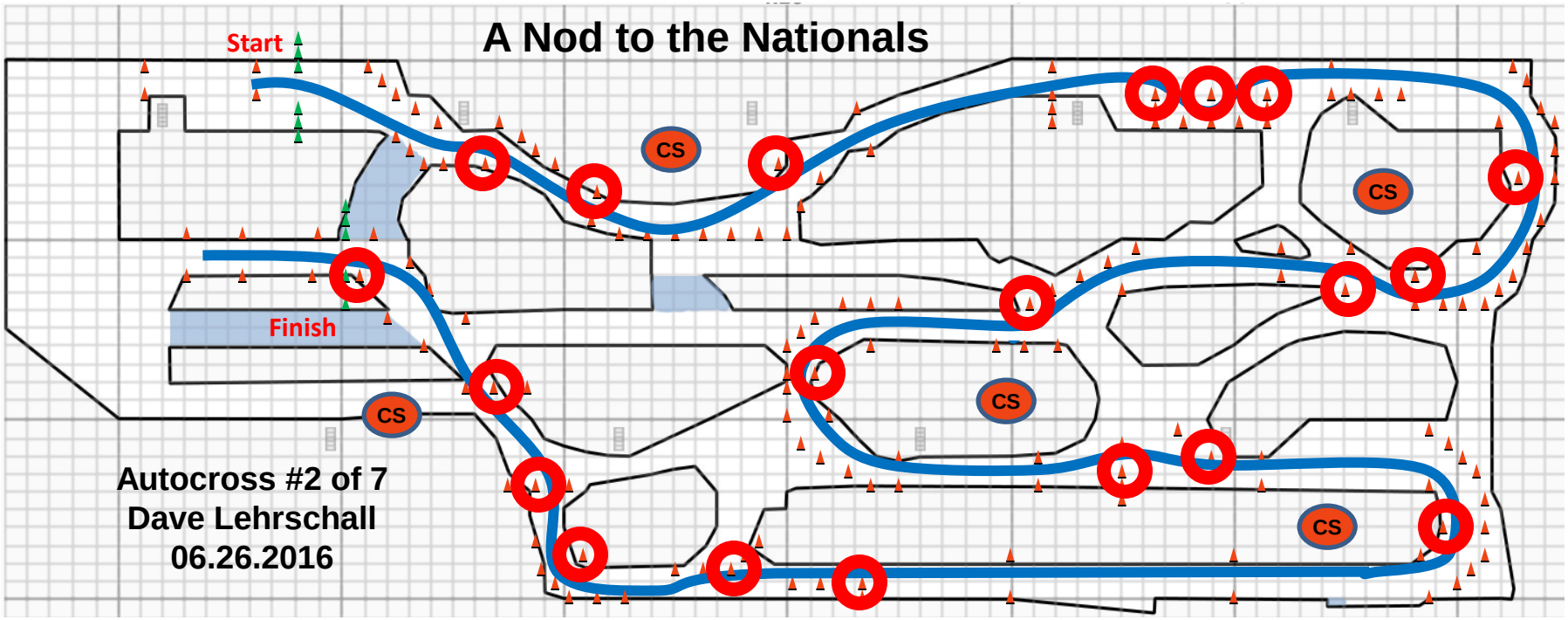
3. **Most of believe that we are capable of remarkably fast shifts. A first to second gear shift can be ripped without almost no measurable lost time. However, if we are shifting up and down multiple times we're going to take more time Stay in 2nd gear."**

Autocross Introduction



Walls and Angled Walls concepts were borrowed from Alex Jones' 2015 SCCA Solo National's East Course "Coneology 301".
The 180 degree Loops were borrowed from Roger Johnson's 2015 Nationals' West Course "Skool Pranks".
The Chicago Box and the 450 ft straight section (a little added emphasis on braking, steering, and acceleration) are mine.
We reserve the right to review the actual course and adjust as required to insure it is a safe course for all participants. - Dave

Autocross Introduction



300+ cones were used for the course on June 26th.
No more than 20 should have been considered "key".

The course from the driver's perspective.

Go-Pro / Track Addict Videos

Autocross Introduction

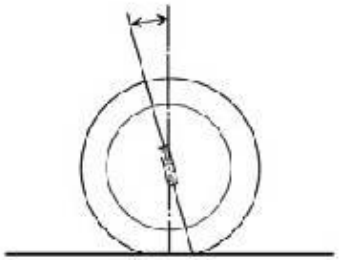
Suspension 1

- Bad suspension setups result in poor tire contact.
- Poor tire contact results in less grip, slower times, and unnecessary tire expense.
- A good setup should have even load, temperature, and wear across the tire.

Autocross Introduction

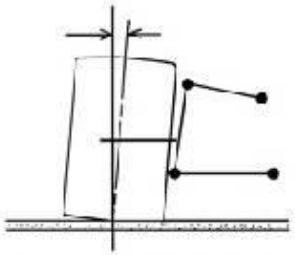
Suspension 2

CASTER ANGLE



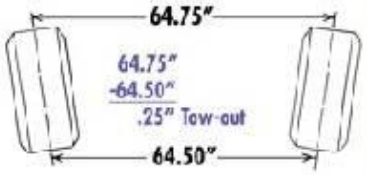
Caster is the inclination of the steering axis from vertical in the longitudinal plane (wheel viewed from the side.) Positive caster is achieved when the steering axis is inclined toward the rear of the vehicle at the top in the side view. Negative caster is when the steering axis is inclined toward the front of the vehicle at the top in the side view.

CAMBER ANGLE



Camber is defined as the inward or outward tilt of a wheel at the top relative to vertical at the center of the wheel in the lateral plane. If the top of the tire is leaning inward toward the center of the car (viewed from the front of the vehicle,) the tire has negative camber. If top of tire is leaning outward, it has positive camber.

TOW-OUT



Tow-out is the difference in distance between the front and rear axle measurements of tires on the same axle in the center of the tread surface at spindle height, where the front measurement is greater than the rear. Tow-in is opposite. Tow-out is a static alignment made to minimize tire scrub and rolling resistance, which develop when a car is cornering.

- These basic suspension measures will have an impact on the way your vehicle handles and your tires wear.
- **There is no universal or "one size fits all" best suspension setup for autocross!!!**
  - Differences in vehicle designs will make common settings result in different on the course measures and performance.
  - Changes and adjustments you make to suspension components and to "other" suspension measures (including tire pressures) on your vehicle will generally affect your on course measures.
  - Beware of following other's setups. (They may not work on your vehicle).

Autocross Introduction

Suspension 3

- Suspension component changes or adjustments may make intended or unintended changes in how a vehicle handles in one or more ways. A partial list includes:
  - Body roll (side to side)
  - Weight transfer between front and rear of vehicle (affecting braking and acceleration).
  - Turn-in
  - Pushing
  - G-force
  - Tracking
  - Dampening (a subject worthy of an hour's discussion by itself)
  - Spring rate

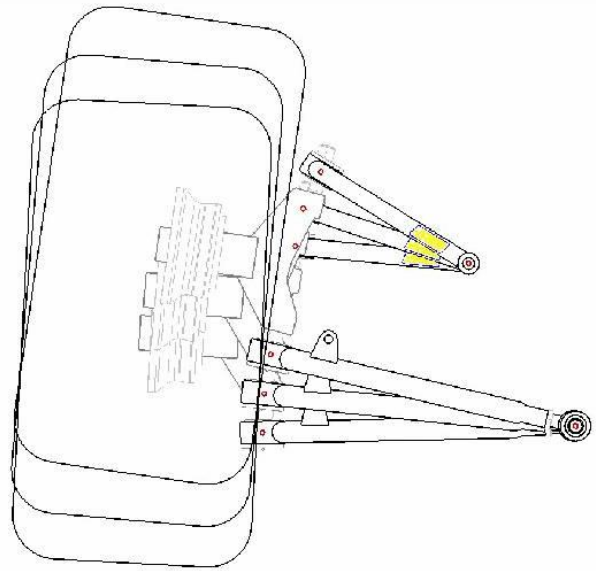
- Suspension changes are usually not independent. For example, front Camber is set and measured with the wheels pointed straight ahead*. This Camber can be multiplied or reduced when the steering wheel is turned by changing the Caster angle.
  - Some changes and settings will work "together" to give a desired handling effect.
  - Some changes and settings will work "against" each other to minimize the desired effect.
  - Changing certain suspension components will change the class your vehicle competes in and the applied PAX index.

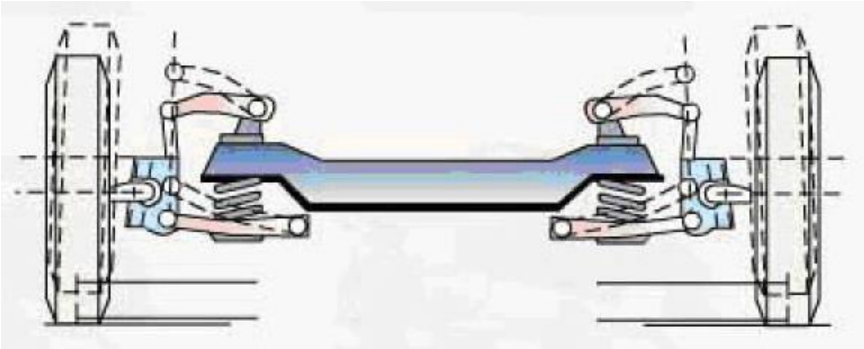
- It is suggested that you:
  - Drive multiple Autocross events to develop a "feel" for how your vehicle handles and what it needs.
  - Cover the basics first with tire air pressures and tire selection.
  - Make changes gradually and track how individual adjustments or changes affect handling.
  - Check which changes are permitted within your class.

*Pointed straight ahead with toe-in or toe-out considered.

Autocross Introduction

Suspension 4





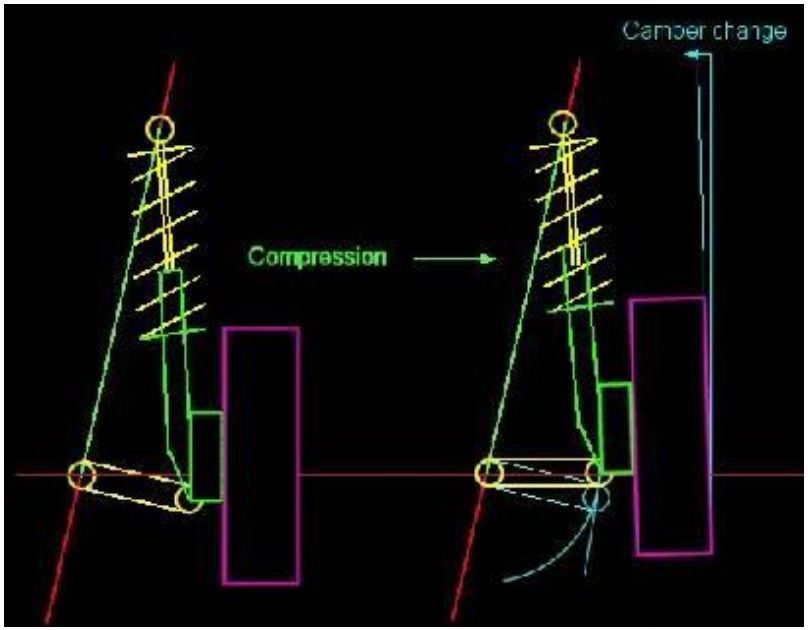
Double Wishbone Suspension

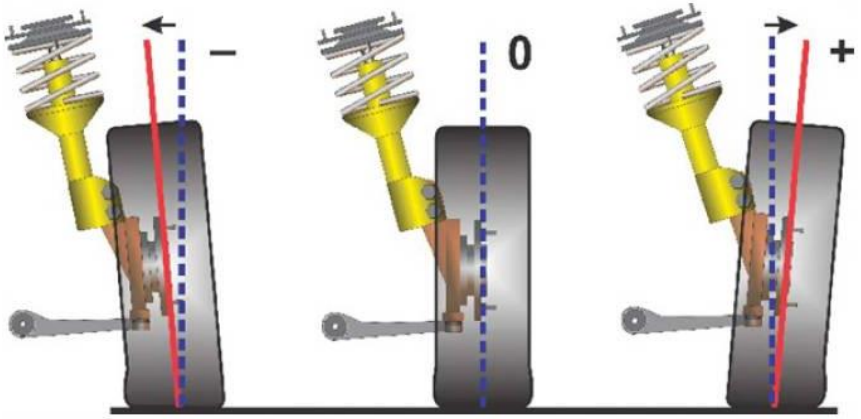
Note how the shorter upper link and longer lower link work together to dramatically increase the negative camber as the wheel is moved upwards.

This change goes to zero if the links are equal length, the links are parallel to each other, and the pivot points are in the same vertical plane.

Autocross Introduction

Suspension 5





MacPherson Strut Suspension

Note how little change in negative camber occurs as the strut (spring and shock combination) is compressed and the wheel is moved upwards.

The lower link starts with a downward angle. As the strut is compressed, the wheel is moved outward and the negative camber is increased.

If the lower link started parallel, compression would pull the wheel inward, adding positive camber (or reducing the negative camber setting).

Autocross Introduction

Suspension 6

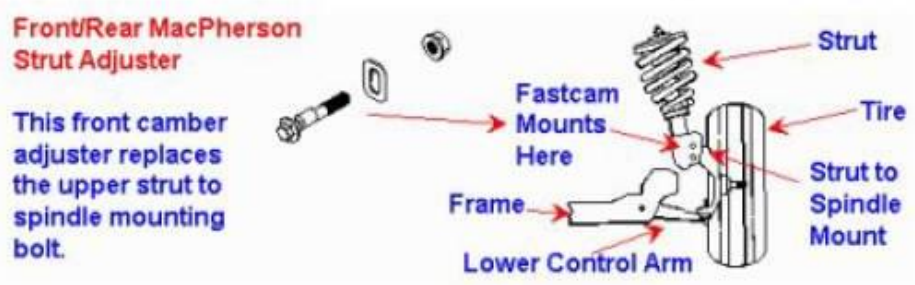
Caster-Camber plates mount to the top of the shock tower and the top of the strut on a MacPherson Strut setup.

Moving the top of the strut to the sideways changes the camber.

Moving the top of the strut forward or backwards changes the caster.

Autocross Introduction

Suspension 7



MacPherson Strut camber adjustments are usually made at the strut to spindle mount. The two bolts are loosened and the wheel assembly tilted. The limit to this adjustment is defined by the slot length provided by the vehicle manufacturer.

Camber bolts have an eccentric portion which permits additional adjustment as the bolt is rotated within the original strut and spindle mount.

Autocross Introduction

Suspension 8

TireRack, an SCCA sponsor, has an excellent online technical section dealing with alignment suggestions and trade-offs information. (www.tirerack.com)

TireRack's Recommendations

If you are a reserved driver, aligning your vehicle to the vehicle manufacturer's preferred settings is appropriate.

If you are an assertive driver who enjoys driving hard through the corners and expressway ramps, a performance alignment is appropriate for your car. A performance alignment consists of using the vehicle manufacturer's range of alignment specifications to maximize the tires' performance. A performance alignment calls for the manufacturer's maximum negative camber, maximum positive caster, and preferred toe settings. While remaining within the vehicle manufacturer's recommendations, these alignment settings will maximize tire performance.

If you are a competition driver who frequently runs autocross, track or road race events, you'll typically want the maximum negative camber, maximum positive caster and most aggressive toe settings available from the car and permitted by the competition rules. If the rules permit, aftermarket camber plates and caster adjustments are good investments.

Autocross Introduction

Scoring 1

Car #	Car	Driver	Class	Run 1		Run 2		Run 3		Run 4		Run 5		Run 6		Best Time	Index	Autocross		
				Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen			Time	Points	
30	Porsche		SS	38.445		37.322		36.809		37.556		37.112		36.308		36.308	0.835	**61.053**	**1000**	B
20	Mustang		FS	48.234		45.885		43.628		43.764		43.444		42.674		42.674	0.810	**69.905**	**873**	B
10	Solstice		ASP	43.432	DNF	42.889	(1)	40.873		41.344		44.208	(2)	41.348		40.873	0.865	**71.118**	**859**	

- This could be a partial printout of the results from a typical Southern Indiana Region Autocross event.
  - The Porsche finished with the fastest time of 61.053 seconds and 1000 points.
  - The Mustang finished 2nd with 69.905 seconds and 873 points.
  - The Solstice finished 3rd with 71.118
- The Porsche ran 8 runs and recorded 6 times of 38.445, 37.322, 36.809, 37.556, 37.112, and 36.308.
- The Solstice's best time was 40.873 and the Mustang's best was 42.674.
- Where did the Porsche's time and points come from?
- How did the Mustang run slower, but finish ahead of the Solstice?
- What happened to the other 2 runs for the Porsche (and Mustang) go?
- Why didn't the Solstice have 8 runs?

Autocross Introduction

Scoring 2

Car #	Car	Driver	Class	Run 1		Run 2		Run 3		Bonus Run 4		Run 5		Run 6		Run 7		Bonus Run 8		
				Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	
10	Solstice		ASP							N/A								N/A		

Car #	Car	Driver	Class	Run 1		Run 2		Run 3		Bonus Run 4		Run 5		Run 6		Run 7		Bonus Run 8		
				Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	
20	Mustang		FS																	B

Car #	Car	Driver	Class	Run 1		Run 2		Run 3		Bonus Run 4		Run 5		Run 6		Run 7		Bonus Run 8		
				Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	
30	Porsche		SS																	B

- Before examining the results, we need to see where the data comes from.
- A typical SIR Autocross event includes 2 sessions of 3 runs plus a bonus run for a potential 8 runs.
- The bonus runs are earned by working at the MAAC patch parties.
- The “B” in the last column indicates that driver is eligible for bonus runs.
- The timing and scoring team collects times for up to 8 runs per driver for scoring purposes.
- Fun Runs may be added from time to time, but these do not count for scoring.

Autocross Introduction

Scoring 3

Car #	Car	Driver	Class	Run 1		Run 2		Run 3		Bonus Run 4		Run 5		Run 6		Run 7		Bonus Run 8		
				Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	
10	Solstice		ASP	43.432	DNF	42.889	(1)	40.873		N/A		41.344		44.208	(2)	41.348		N/A		
Car #	Car	Driver	Class	Run 1		Run 2		Run 3		Bonus Run 4		Run 5		Run 6		Run 7		Bonus Run 8		
				Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	
20	Mustang		FS	48.234		45.885		48.367	(1)	43.628		45.213		43.764		43.444		42.674		B
Car #	Car	Driver	Class	Run 1		Run 2		Run 3		Bonus Run 4		Run 5		Run 6		Run 7		Bonus Run 8		
				Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	
30	Porsche		SS	39.588		38.445		37.322		36.809		37.556		37.112		38.759	(1)	36.308		B

- Times are entered for each run and adjusted for penalties.
- The actual time becomes the adjusted time with 2 seconds added for each cone penalty.
- The number of cone penalties is shown within brackets.
- The time is indicated, but does not count for scoring if the course was not follow and a DNF was recorded. (The time will be recorded, but not scored).

Autocross Introduction

Scoring 3

Car #	Car	Driver	Class	Run 1		Run 2		Run 3		Bonus Run 4		Run 5		Run 6		Run 7		Bonus Run 8		
				Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	
10	Solstice		ASP	43.432	DNF	42.889	(1)	40.873		N/A		41.344		44.208	(2)	41.348		N/A		

Car #	Car	Driver	Class	Run 1		Run 2		Run 3		Run 4		Run 5		Run 6		Best Time	Index	Autocross		
				Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen			Time	Points	
10	Solstice		ASP	43.432	DNF	42.889	(1)	40.873		41.344		44.208	(2)	41.348			0.865			

Car #	Car	Driver	Class	Run 1		Run 2		Run 3		Bonus Run 4		Run 5		Run 6		Run 7		Bonus Run 8		
				Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	
20	Mustang		FS	48.234		45.885		48.367	(1)	43.628		45.213		43.764		43.444		42.674		B

Car #	Car	Driver	Class	Run 1		Run 2		Run 3		Run 4		Run 5		Run 6		Best Time	Index	Autocross		
				Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen			Time	Points	
20	Mustang		FS	48.234		45.885		43.628		43.764		43.444		42.674			0.810			B

Car #	Car	Driver	Class	Run 1		Run 2		Run 3		Bonus Run 4		Run 5		Run 6		Run 7		Bonus Run 8		
				Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	
30	Porsche		SS	39.588		38.445		37.322		36.809		37.556		37.112		38.759	(1)	36.308		B

Car #	Car	Driver	Class	Run 1		Run 2		Run 3		Run 4		Run 5		Run 6		Best Time	Index	Autocross		
				Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen			Time	Points	
30	Porsche		SS	38.445		37.322		36.809		37.556		37.112		36.308			0.835			B

- Scoring is based upon the best run in the first half plus the best run in the second half.
- Note that the best runs for the Porsche and Mustang were bonus runs.

Autocross Introduction

Scoring 4

Car #	Car	Driver	Class	Run 1		Run 2		Run 3		Run 4		Run 5		Run 6		Best Time	Index	Autocross		
				Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen			Time	Points	
10	Solstice		ASP	43.432	DNF	42.889	(1)	40.873		41.344		44.208	(2)	41.348		40.873	0.865			

Car #	Car	Driver	Class	Run 1		Run 2		Run 3		Run 4		Run 5		Run 6		Best Time	Index	Autocross		
				Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen			Time	Points	
20	Mustang		FS	48.234		45.885		43.628		43.764		43.444		42.674		42.674	0.810			B

Car #	Car	Driver	Class	Run 1		Run 2		Run 3		Run 4		Run 5		Run 6		Best Time	Index	Autocross		
				Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen			Time	Points	
30	Porsche		SS	38.445		37.322		36.809		37.556		37.112		36.308		36.308	0.835			B

- The best time is the best adjusted time of the 3 scored runs from the 2 Autocross event sessions.
- Note that the Porsche had the fastest time, followed by the Solstice, and then the Mustang.
- The Car Class and the PAX or Professional Autocross Index are defined by the basic vehicle and the modifications that have been made to it.
- The PAX or Professional Autocross Index is recorded in the spreadsheet and is used to calculate event “PAX” results.

Autocross Introduction

Scoring 5

Car #	Car	Driver	Class	Run 1		Run 2		Run 3		Run 4		Run 5		Run 6		Best Time	Index	Autocross		
				Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen			Time	Points	
10	Solstice		ASP	43.432	DNF	42.889	(1)	40.873		41.344		44.208	(2)	41.348		40.873	0.865	**71.118**		

Autocross Time = PAX Index multiplied by ((First Half Best Run) plus (Second Half Best Run))

Autocross Time = 0.865 multiplied by ((40.873) plus (41.344)) = 0.865 X 82.217 = 71.1177

Car #	Car	Driver	Class	Run 1		Run 2		Run 3		Run 4		Run 5		Run 6		Best Time	Index	Autocross		
				Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen			Time	Points	
20	Mustang		FS	48.234		45.885		43.628		43.764		43.444		42.674		42.674	0.810	**69.905**		B

Autocross Time = PAX Index multiplied by ((First Half Best Run) plus (Second Half Best Run))

Autocross Time = 0.810 multiplied by ((43.628) plus (42.674)) = 0.810 X 86.302 = 69.9046

Car #	Car	Driver	Class	Run 1		Run 2		Run 3		Run 4		Run 5		Run 6		Best Time	Index	Autocross		
				Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen			Time	Points	
30	Porsche		SS	38.445		37.322		36.809		37.556		37.112		36.308		36.308	0.835	**61.053**		B

Autocross Time = PAX Index multiplied by ((First Half Best Run) plus (Second Half Best Run))

Autocross Time = 0.835 multiplied by ((36.809) plus (36.308)) = 0.835 X 73.117 = 61.0526

- Autocross time is calculated by adding the fastest scored run time from the the first session to the fastest scored run time from the second session and then multiplying the combined time by the Professional Autocross Index.

- The calculated Autocross Time determines the finishing position for car and driver within the Autocross point standings.

Autocross Introduction

Scoring 6

Car #	Car	Driver	Class	Run 1		Run 2		Run 3		Run 4		Run 5		Run 6		Best Time	Index	Autocross	
				Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen			Time	Points
10	Solstice		ASP	43.432	DNF	42.889	(1)	40.873		41.344		44.208	(2)	41.348		40.873	0.865	**71.118**	**859**

Individual's Autocross Points = First Place Time divided by Individual's Time multiplied by 1000

Individual's Autocross Points = 61.0526 divided by 71.1177 multiplied by 1000 = 858.47

Car #	Car	Driver	Class	Run 1		Run 2		Run 3		Run 4		Run 5		Run 6		Best Time	Index	Autocross		
				Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen			Time	Points	
20	Mustang		FS	48.234		45.885		43.628		43.764		43.444		42.674		42.674	0.810	**69.905**	**873**	B

Individual's Autocross Points = First Place Time divided by Individual's Time multiplied by 1000

Individual's Autocross Points = 61.0526 divided by 69.9046 multiplied by 1000 = 873.37

Car #	Car	Driver	Class	Run 1		Run 2		Run 3		Run 4		Run 5		Run 6		Best Time	Index	Autocross		
				Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen			Time	Points	
30	Porsche		SS	38.445		37.322		36.809		37.556		37.112		36.308		36.308	0.835	**61.053**	**1000**	B

Best Indexed Autocross Time = 1000 points for the event

- Each competitor's Autocross point score is based upon the ratio of the first place finisher's PAX time divided by the individual competitor's PAX time multiplied by 1000.

- Event Points make it possible to compare drivers' performance throughout the year, on different courses and to accumulate SIR Autocross Championship points.

- There is a minimum of 750 event points awarded to each competitor.

Autocross Introduction

Scoring 7

Car #	Car	Driver	Class	Run 1		Run 2		Run 3		Run 4		Run 5		Run 6		Best Time	Index	Autocross		
				Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen	Adj Time	Pen			Time	Points	
30	Porsche		SS	38.445		37.322		36.809		37.556		37.112		36.308		36.308	0.835	**61.053**	**1000**	B
20	Mustang		FS	48.234		45.885		43.628		43.764		43.444		42.674		42.674	0.810	**69.905**	**873**	B
10	Solstice		ASP	43.432	DNF	42.889	(1)	40.873		41.344		44.208	(2)	41.348		40.873	0.865	**71.118**	**859**	

➢Event “PAX” finish results are shown with all members’ results in order from highest to lowest.

➢In a similar manner, cars and drivers are grouped by class and placed in finish order based upon the single best non-indexed time ***in bump class***.

➢Where did the Porsche’s time and points come from?

Ans. Fastest scored runs came from bonus runs. The 1000 points were assigned to the fasted car and driver combination.

➢How did the Mustang run slower, but finish ahead of the Solstice?

Ans. The Mustang (FS) Class is assigned a lower multiplying factor or PAX Index than the modified Solstice (ASP) Class based upon studies of vehicle finishes each year.

➢What happened to the other 2 runs for the Porsche (and Mustang) go?

Ans. Only 3 of the 4 runs from each session are scored.

➢Why didn’t the Solstice have 8 runs?

Ans. The driver did not qualify for the Bonus Program by working on the Lawrenceville Mid-American Air Center Patch Parties.*

•Damaged or loose concrete is cut out and replaced to improve the Autocross surface.

➢A priority is given to making sure bonus runs happen.

Autocross Introduction

Patch Parties

Our autocross surface at the Mid-America Air Center dates from WWII (!!). It's good and sturdy but needs regular TLC to stay in the condition to which we've become accustomed. What this means is that annual Patch Parties to maintain the surface are necessary. Plan now to join in on the following workdays:

- Saturday, April 21: Dig Day 1
- Sunday, April 22: Dig Day 2
- Saturday, April 28: Fill Day (Sunday 4/29 alternate)

There are jobs available for all abilities, and there's tangible reward for your hard work:

The Bonus Run program. If you work 1 of the 3 possible days, you earn 1 bonus autocross run (following your first heat); 2 of the 3 days earns 2 runs; work all 3 days and earn 2 runs plus one free entry.

2018 PAX Index

SS	0.817	SSP	0.852	XP	0.884	AM	1.000
AS	0.814	ASP	0.848	BP	0.860	BM	0.956
BS	0.808	BSP	0.846	CP	0.847	CM	0.890
CS	0.805	CSP	0.857	DP	0.858	DM	0.895
DS	0.794	DSP	0.835	EP	0.850	EM	0.894
ES	0.787	ESP	0.828	FP	0.863	FM	0.904
FS	0.797	FSP	0.819	HCR	0.812	FSAE	0.958
GS	0.786						
HS	0.781	SSR	0.838	SMF	0.839	KM	0.928
HCS	0.791			SM	0.853	JA	0.855
SSC	0.806	CAM-C	0.816	SSM	0.871	JB	0.825
		CAM-T	0.807			JC	0.718
STS	0.810	CAM-S	0.831				
STX	0.813						
STR	0.823						
STU	0.824						
STP	0.815						
STH	0.811						

Autocross Introduction

Next Event

Snow Buster Fun Autocross - Sunday March 4, 2018

Roberts Park, Evansville

7:00 AM Setup course begins

8:00 AM Tech and Registration open

9:30 AM Tech and Registration close

9:30 AM Guided course walk

10:00 AM Drivers meeting

10:30 AM First car off

All SIR Event Times Will Be On Central Time.

Event Starting Times May Change.

(Check Our Website)

What to Expect 1

7:00 AM Setup course begins

- Cones are set in place to create course per the Event Marshal's plan.
- Track is blown clear of dirt and debris
- Timing & Scoring Trailer is set up and equipment unloaded
- Course is reviewed by Safety Steward(s) and then cone positions are marked.

8:00 AM Tech and Registration open

- Vehicles are given a safety check and required equipment check
- Vehicle Identification per SCCA rules
- Helmets are checked for current safety stickers per SCCA rules
- Vehicle class determination assistance can be provided
- Signed Tech Inspection card, Drivers License, SCCA Membership card, and event fees are presented to Registration at the Timing & Scoring Trailer.
- Weekend Membership documents, Minor Waivers, and Event Waivers are processed.
- Participants' name, vehicle number, and class are entered into the computer
- Run groups and worker assignments lists are developed.

What to Expect 2

9:30 AM Tech and Registration close

- Documents are secured and filed
- Run group and worker assignments are finalized
- Tech and Registration workers finalize their car prep, walk the course, take breaks.
- Entrants finish their vehicle prep and walk the course

9:30 AM Guided course walk

Experienced SIR members lead groups through the course

- Discuss interpretation of cone and pointer placement
- Discuss various course attack strategies

10:00 AM Drivers meeting

- Required for all Drivers and Passengers
- Safety and Event regulations and details are reviewed
- Worker instructions are reviewed
- Run Group and Worker assignments are communicated

10:30 AM First car off

What to Expect 3

Restroom breaks will require a little planning.

- MAAC (Lawrenceville) facilities are located inside the airport terminal
- Roberts' Par facilities are located inside the skating rink.

We will take a 20 minute break after both groups have run their first set of runs and before resuming the second set of runs.

- This is a good time to open your sack lunch and reflect on your first runs.
- Course workers and drivers should be in position at the end of this period to resume the event

Course set-up, tear-down, and event course work is expected of all participating drivers.

- If you did not assist with set-up, you should assist with tear-down.
- Course workers must check in at Timing & Scoring before heading to their assignment.
- Leaving early, failing to assist with set-up or tear-down will result in disqualification for the event. (Exceptions must be discussed with the event officials beforehand).

Tech Inspection

Each vehicle is a little different and may cause us to vary our checks somewhat, however the goal is to insure your vehicle does not present a potential safety hazard for you or others. We also want to insure that it meets the SCCA Rules & Regulations not only for safety, but for the fair and efficient running of the event , and maintenance of good relations with our neighbors.

At a minimum your vehicle must have:

- A secure battery (Loose / tilting batteries may cause fires).
- No exposed chords or damage to the tire's structure.
- No missing lug-nuts or broken / cracked wheels
- No loose suspension components
- Good brake pedal pressure
- Properly functioning throttle return spring (Unless "drive-by-wire" equipped).
- No fluid leakage (This could affect and or delay the event).
- No loose items including floor mats in the vehicle (These may distract the driver on course or move into a position that limits brake travel).
- Vehicle numbers and class identification per SCCA rules.

Autocross Introduction

Vehicle ID

The SCCA General Rules for Autocross competition define vehicle identification requirements. These are pasted here. The complete rules can be found on line at www.scca.com

3.7 Vehicle Identification

1. All vehicles must display numbers and class letters on both sides, which must be readable by Timing & Scoring, Course, and Grid workers at all times.
2. Only one set of numbers and class letters may be visible while the vehicle is running.
3. Class shall be represented by the upper-case abbreviated form rather than be spelled out. Ladies' classes shall be indicated by the letter "L" following the class letters. (Example: "BSPL" instead of "B Street Prepared Ladies").
4. Numbers and class letters should be positioned next to each other. All letters and numbers must be on body panels, not on windows. All numbers and class letters must use the same typeface and the same color, and this color must provide adequate contrast to the background color (see Appendix F for examples).
5. Numbers must be a minimum of 8" (20.5 cm) high with a 1¼" (3.25 cm) stroke. Class letters must be a minimum of 4" (10.25 cm) high with a ¾" (2 cm) stroke. In all cases, the height of the class letters must be between 25% and 75% of the height of the numbers. Stroke width must be at least 10% of the height (see Appendix F.)
6. The "1" on two-driver cars and the "L" on Ladies class cars are subject to all of the above requirements with regard to placement, color, size, and stroke.
7. For National Championship and National Tour competition, current official SCCA® required decals must be displayed on each side and front of the vehicle in a prominent location.
   For National Championship and National Tour events, one (1) official SCCA® approved National sponsor identification logo must be displayed in an upright position, in a prominent location on each side of the vehicle. Additional sponsor and / or event specific decals may also be required: refer to event supplemental regulations. Further information is contained in Appendix F.