



2025 Road Course Racing

# Rivercity Motors Advanced Driving & Race Licensing School

Conducted By The Northern Alberta Sports Car Club



Classroom 1 – Know the Flags (Test!)

On Track Session 1– Learn the Line

- Optimum path called “the line”
  - maximize radius of corner
- In-car instructors may ask to drive student’s car to demonstrate for the first 2-3 laps

# Flags and Their Meanings

- Watch the Flag presentation
- These slides are just place holders
- Read the notes to prepare for the written exam
- <https://nascc.ab.ca/wp-content/uploads/2023/05/Flags-of-WCMA-copy.pdf>
- Basics
- Yellow caution flag
  - Slow down until you pass the incident
- Red Flag
  - Come to a safe controlled stop off the racing line
- Black Flag
  - Chief Instructor needs to talk to you about your driving on track – come in to pits

# Safety

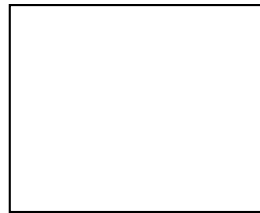
- Flags and signals:



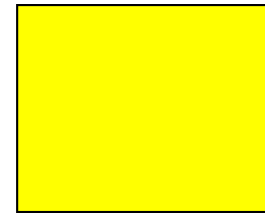
Blue - overtaking



Green - Road clear



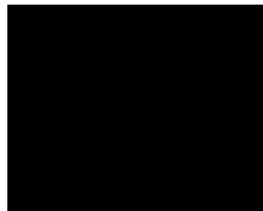
White - Slow moving vehicle



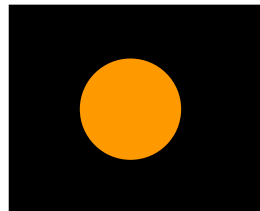
Yellow - Danger



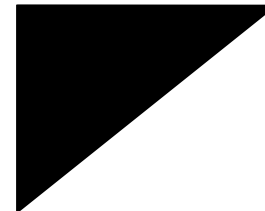
Red - cease racing  
stop



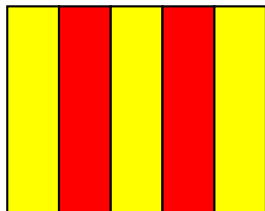
Black - report to  
clerk



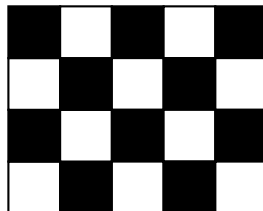
Meatball - Mechanical  
failure



Black/White - Warning



Yellow/Red - Change  
of adhesion



Chequered - End of race

## Classroom 2 - Safety


### On Track Session 2 – Focus on braking

#### Importance of braking points

- Reinforce and refine “the line”
  - – angle of attack to corners



# Review track protocols

- Helmets for all sessions
  - Always wait at track entrance to be waived on
  - Enter the track under acceleration and keep to outside
  - When being passed – point the other driver by to pass you
    - on the inside line of the straight
    - You stay on the normal line along the straight
  - Passing zones – must point by to be passed, ease up to allow a faster pass –
  - If wheels off track – mandatory pit stop
    - 2 wheels off talk with your instructor in pit lane
    - Spin - talk with Chief instructor in the pit lane
    - 4 wheels off – talk with Chief Instructor in the pit lane
- 

# Safety, Health & Well Being

- What's wrong with this picture?



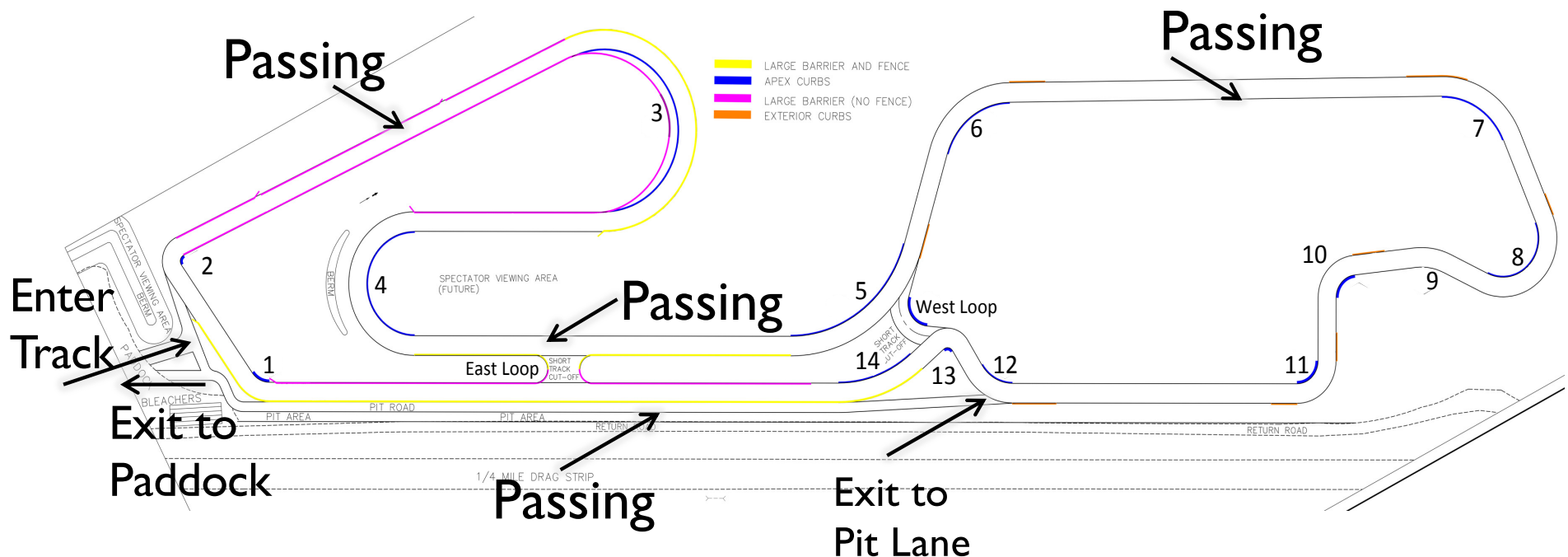
# Safety – in Paddock & Hot Pit lane

- Pit and Paddock safety:
  - Paddock speed is dead slow; 15 km/hr.
  - Pit lane & Paddock crew fully clothed,
  - nomex recommended for refueling in Paddock
  - Smoking is not permitted in the pit lane or when fueling
  - Cars must enter the track through the pit
  - Cars must exit the track through the dedicated track exit
  - Cars may not be driven backwards in the pit lane.



# Track layout for protocols

Passing zone is from corner exit to braking zone

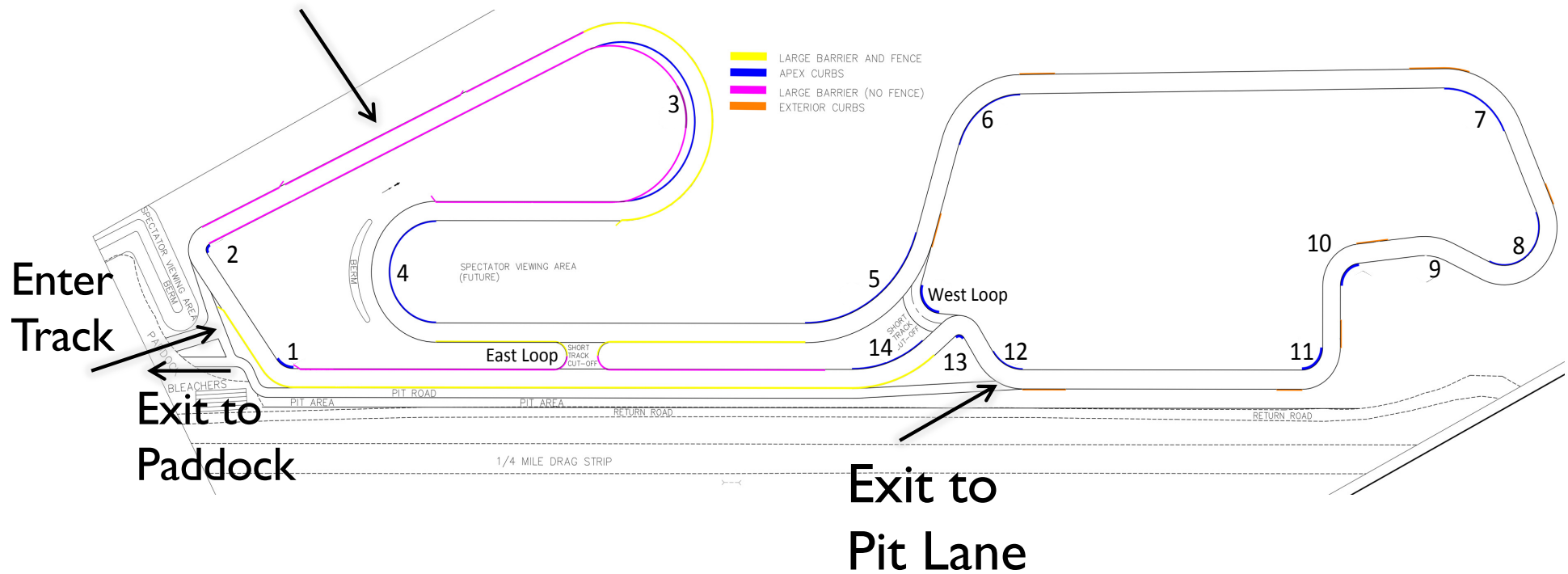


Passing requires a point by

Remember there will be several cars in some passing groups due to lead/follow

# Lead/Follow protocols

Lead/Follow position  
switch



# Safety – on track

- On track safety:
  - Obey flags & signals
  - Overtaking vehicle - responsible to pass safely
  - Yield right-of-way in lose-lose situations.
  - No vehicle may ever move counter to the normal direction of travel.
  - Rejoin - when other traffic has cleared the racing line.
    - If you are off track you have already compromised your race, do not compromise others when re-entering

# Most Important piece of Safety Equipment...

- What is the most important piece of safety equipment you will need???
- Helmet?
- Safety belts?
- Harness?
- Roll Cage?



# ...YOUR MELON!!!

- When racing, if your brain says something “just might not work” - LISTEN to it!
- More races have been **lost** in the first corner or lap than have ever been **won**!
- In the paddock if you have to say “what could go wrong?” then think about it again.
- At the end of the day, we all want to go home with our cars and bodies in one piece.



Focus, focus, focus  
easy to loose – results can be deadly  
Fernando Alonso in F1 early days



# Safety – Your Health

- Medical Safety:

- Fitness

- Hydration

- Actively focus on drinking water and staying hydrated

- Don't race fatigued

- No drugs, alcohol, etc.

- Medical conditions – inform appropriate parties if necessary (ie: ambulance personnel)



# Safety – on you and in car

- Safety Equipment - *outlined in the Race Regulations:*
  - Snell SA 2015 & 2020 helmet and HANS device.
    - 2020 spec out now, 2010 helmets expired end of 2023
  - Approved fire retardant single piece driving suit, gloves, shoes, socks and balaclava
  - 5 or 6 point racing seat belts
    - SFI belts expire every 2 years, FIA every 5 years
  - Car preparation according to class:
    - Fuel cells, window netting, fuel line specs, seat requirements, roll-cage specs, etc.



## Classroom 3 – Race Driving

### On Track Session 3 – Emphasis on Vision

- Importance of **VISION**
  - Car goes where you are looking
  - Look further down the track, look ahead
  - Look **past** whatever you are doing now
- Awareness – towards situational awareness
  - Green flags thrown - students call out
  - say what car is behind, what is front

# Race Driving - the Secret Sauce (part 8a)

- Race Car driving is simply more precise
  - Qualifying laps, consistent and daring
  - Same principles as HPDE
  - “The rules dictate some things, but in terms of driving you just try to go as fast as you can.” - Kimi Raikkonen
  - “All of us drivers take our car, fast or slow, to the limit. And when you're at the limit, it's like wrestling a bull.” – Lewis Hamilton
- Monaco Grand Prix 2023 qualifying saw some amazing bull wrestling







# Race Driving – others are Faster

- There is no HPDE instructor in the car, you must teach yourself to be faster
- Tools – learn from other drivers
  - where do they apply the brakes?
  - where do they seem to get on the throttle?
  - where are they trail braking?
  - is their line different at corner exit or entrance?
  - are you faster at one corner and them at another?
- Try to keep up with them, work yourself harder

# Race Driving – Tools to Improve 87

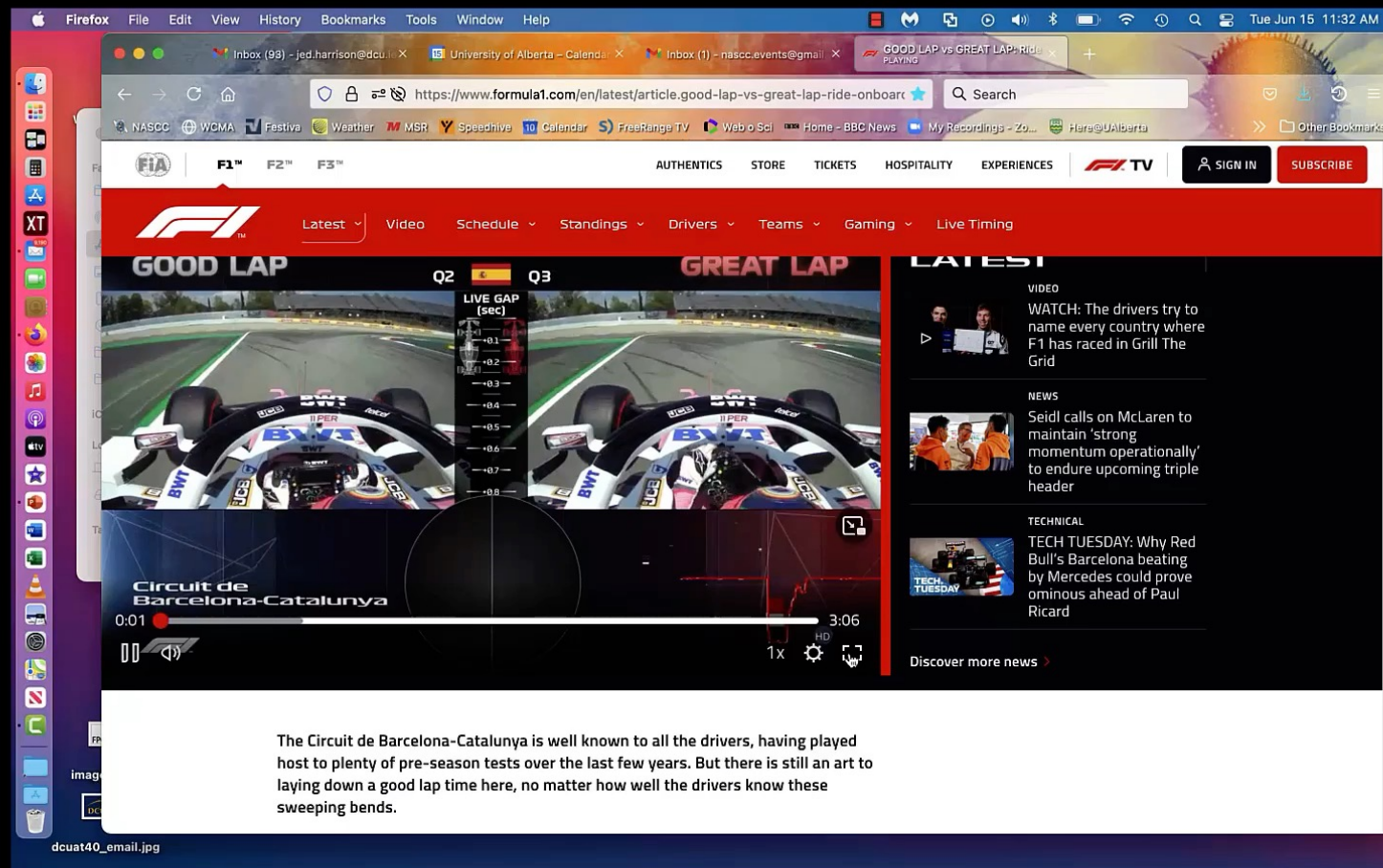
- Make the straights longer (full throttle, WOT)
  - distance you are at WOT starts in corner, ends under braking
  - use more car control, opposite lock, weight shift to rear wheels, later apex, trail braking, etc, to support WOT
- Use brakes to go faster
  - brake modulation with trail braking can balance weight transfer to give better turn in and corner speed
  - later braking carries speed for longer, but has the smallest pay back in lap times, and largest risk (**caution**)
- Use your butt
  - feel the grip, feel when you are losing grip
  - get every corner to the point you are just losing grip
- Be Precise
  - Hit your marks for turn in, apex and exit
- Relax
  - find a flow to your driving, don't stress over each corner and each mistake

# Sergio Perez – get on throttle earlier

88

Extend the length of the straights – given by distance from on throttle to off throttle

Improves precision of using all the track, controlling car attitude, so allows him to more aggressively get on the throttle





# Ross Bentley on sensing limits

**Sim racers**, because they can't feel yaw (the rotation of the car as seen from directly above the car),

- tend to “drive the car off the front tires.”
- They initiate understeer so they can sense the car's limit.
- *They sense the limit through the steering wheel.*

Many, but not all, **real-world drivers** who have not used sims,

- “drive the car off the rear tires.”
- *They sense the limits of the car more by the car's yaw angle than by what they feel in the steering wheel.*



# Race Driving – Tools to Improve 90

- Extend your vision further down track
  - this is a constant effort
  - it is easy to drift back to driving off your hood
- the car goes where you look
- As Brooke says “of course I saw the wall, I hit it didn’t I”



# 5 Basic Driving Mistakes

- 1 - Improper Driving Position
- 2 - Failure to Look Ahead
- 3 - Apexing Too Early
- 4 - Improper Braking Technique
- 5 - Improper Downshift Technique

Contrast with the F1 drivers we watched

Doing these things perfectly earns them their fastest lap

## Classroom 4 – Racing Starts & Passing

### On Track Session 4 – weight transfer

- Importance of balancing the car
  - Applying brakes, throttle or steering shifts weight (load) around the tires
  - Smooth application of inputs helps keep the car balanced
  - Abrupt inputs unsettle the car, reducing grip

# Racing – Starts

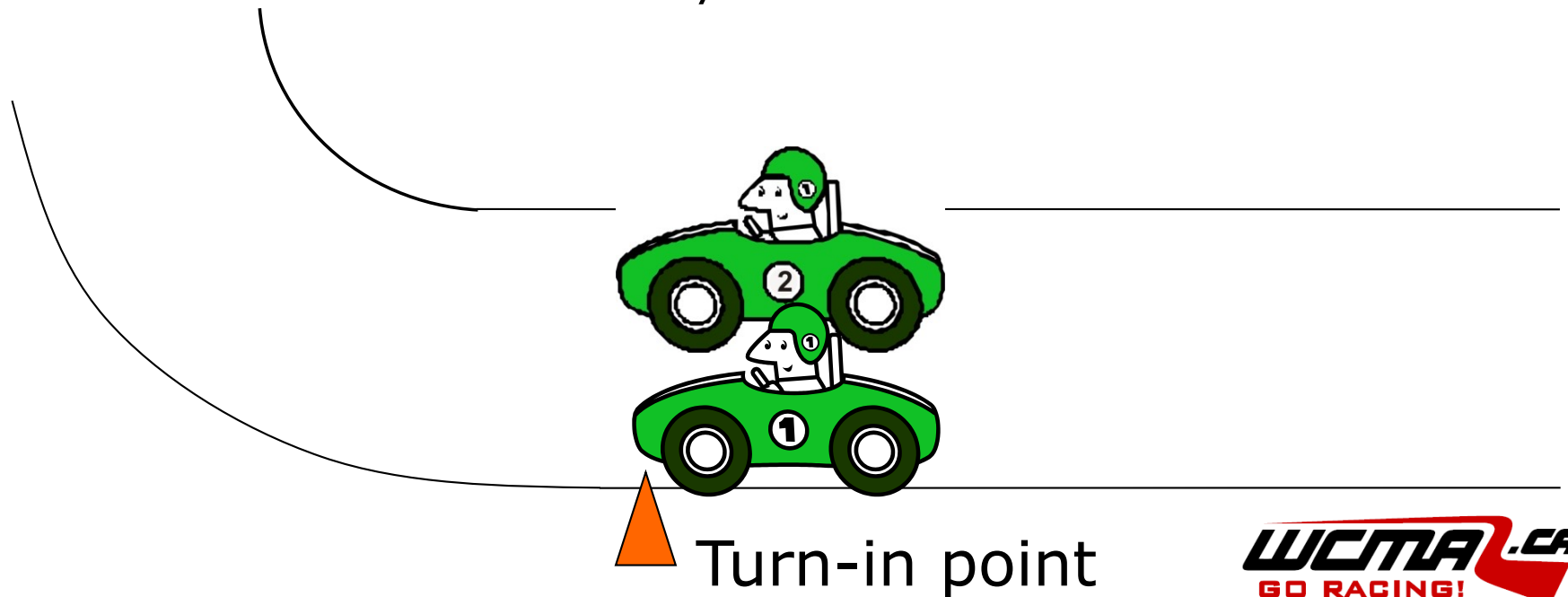


- Sprint Starting Procedure
  - Line up in pre-grid - 2 by 2 in qualifying order
  - Enter the track in order from pre-grid
  - Line up behind pace car - lights on
  - Pace car rolls for warm-up lap(s) – cars follow 2 by 2
    - Tightly spaced!!
  - Near end of warm-up lap – pace car lights out
    - This signals start next time by start/finish
  - Pace car exits into pits – pole car sets the pace
  - Field formed up? - Green! Green! Green!
  - Field ragged? – go around again under control of pole car

# Racing – Passing 1

- Most contentious part of racing – most risky too
  - Who has ‘right-of-way’?

Car 2 is ahead and has the right of way,  
Car 1 needs to yield the corner

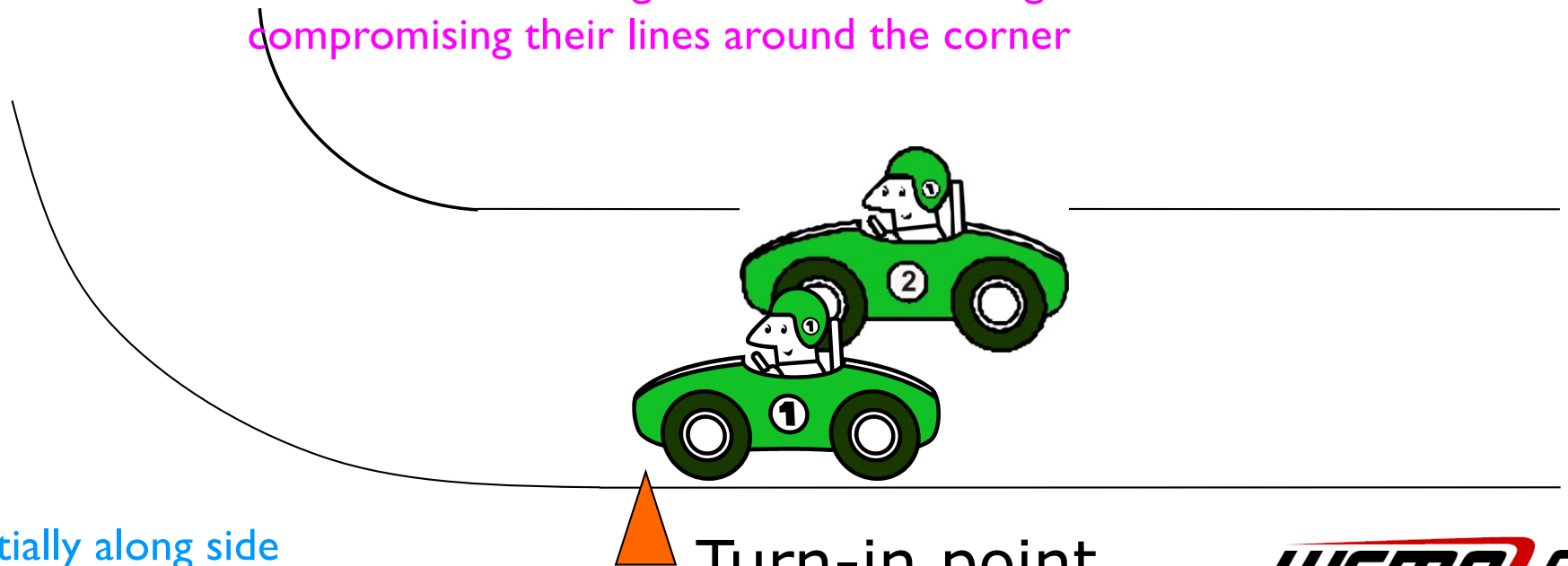


# Racing – Passing 2

- Most contentious part of racing – most risky too
  - Who has ‘right-of-way’?

Here car 2 is substantially alongside car 1,  
but pass is not complete

Car 1 and 2 have to give each other racing room, both  
compromising their lines around the corner



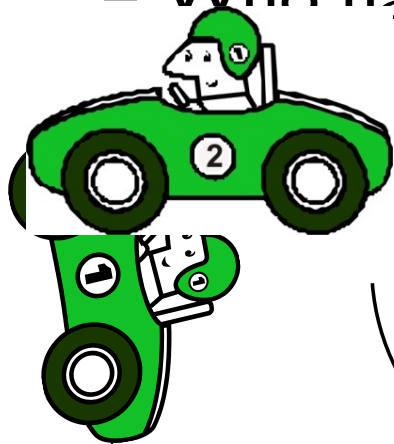
Substantially along side

Front wheel of 2, around driver's door of 1

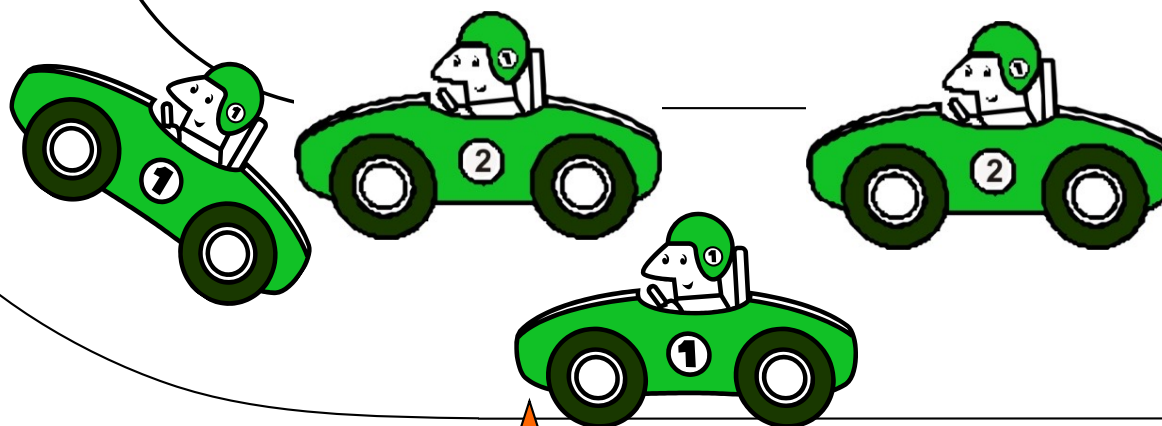
Turn-in point

# Racing – Passing 3

- Most contentious part of racing – most risky too
  - Who has 'right-of-way'?



Here car 2 is just at the tail end of 1, when 1 is at the turn in point  
Car 1 has the right of way



Known as dive bombing the corner,  
often has disastrous results



Turn-in point





# Short'n'sweet summary

All competitors have a right to “racing room” on the marked racing surface. All have a responsibility to avoid contact.

“Racing room” is generally defined as sufficient space on the marked racing surface so as to allow a competitor to maintain control of his car in close quarters, under racing conditions.





# Leaving some Racing Room





# Leaving no Racing Room





# WCMA Passing Rules (for your reference)

## ■ **9.4 Passing on the race track**

■ a. Corners or curves, as well as the entry and exit zones thereof may be negotiated by drivers as they wish, within the limits of the marked race track.

■ **b. The responsibility for the decision to pass another car rests with the overtaking driver.**

However this will not relieve the overtaken driver from the responsibility for the safe passing of another car.

# Classroom 5 -Racing Officials & You

## On Track Session 5 – Rolling Starts

- **Student Side-by-Side & Rolling Starts**
  - **Instructors in car or observe from corners**
- Sub-groups of 5 or 6 cars within the colour run group, organized in paddock
- Pace car for every sub-group of cars (so 3 Pace cars)
- Rolling start practice,
  - Between corners 2 to end of 3
- Side by side
  - Drive around rest of track side by side behind pace car
- After about ten minutes
  - Black Flag All will bring you through the hot pit lane,
  - and then back on track for a regular session
  - Lead/follow students proceed to paddock to collect instructor car

# WCMA Hierarchy & Basic Racing Stuff

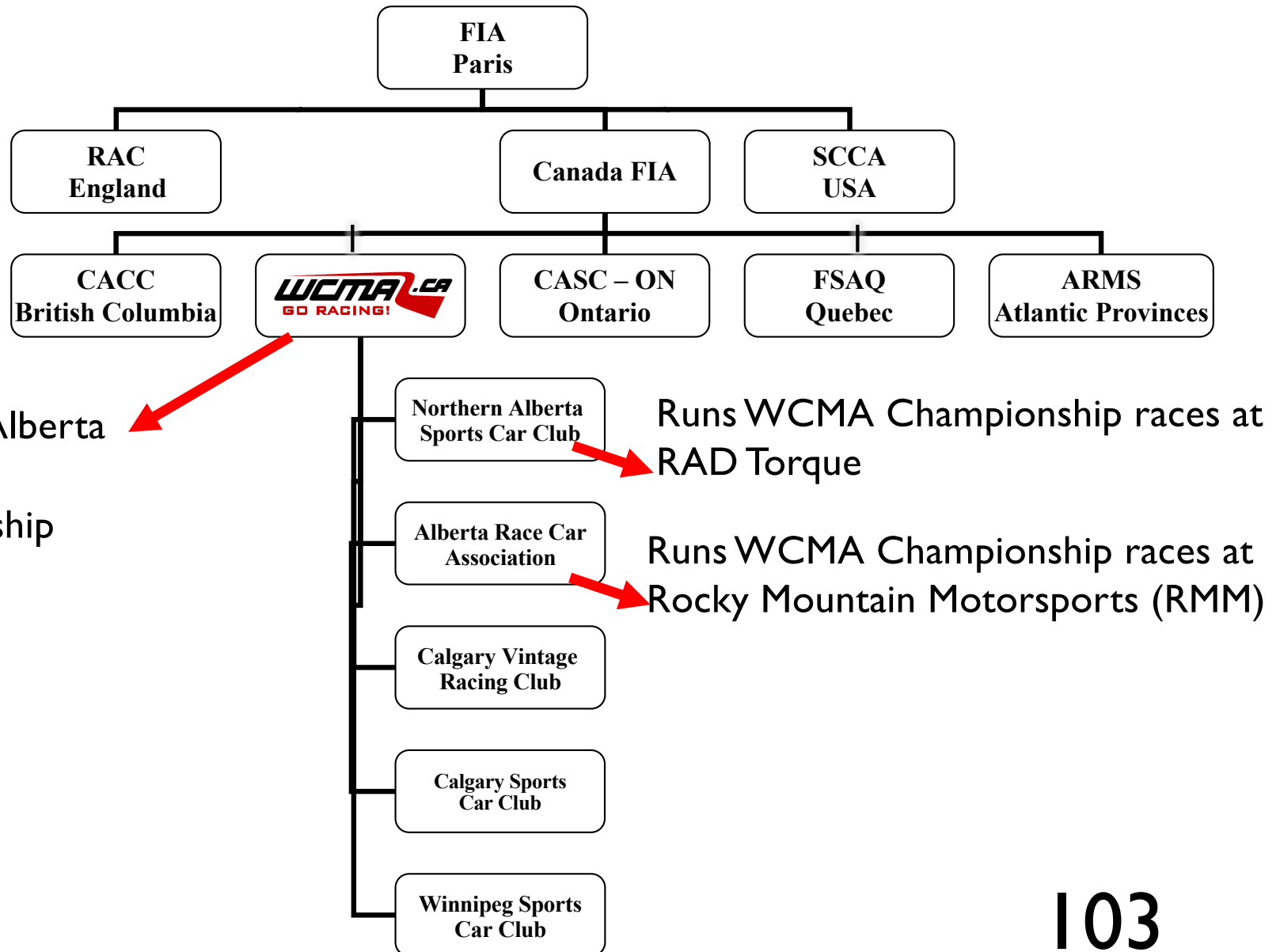
Western Canada Motorsport Association

- Sanctioning body - Alberta, Saskatchewan, Manitoba
- Responsible - safe and fair administration
- Racing, Solo, School events
- [www.wcma.ca](http://www.wcma.ca)





# Motorsport Organization



# WCMA Regulations

- Sporting Regulations
- Technical Regulations
- Solo (Solosprint) regulations
- Supplementary regulations
  - All available on-line: [www.wcma.ca](http://www.wcma.ca)



# WCMA Officials

- Chief of Licensing – Sue Wilson
- Senior Steward, Steward & Recording Steward
- Clerk of the Course
- Chief Timing and Scoring
- Chief Starter
- Corner marshals
- Chief Scrutineer



# How to go racing

- Join a WCMA affiliated racing club
  - Alberta Race Car Association
  - Calgary Sports Car Club
  - Northern Alberta Sports Car Club
- Enter a rent-a-ride series
- Jump into the online forums,
  - [www.wcma.ca](http://www.wcma.ca)
  - NASCC group Facebook page