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Track: Road America
Car: Daytona Prototype
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Orion Race School Replay Analysis

1) Overview

Road America is a great track for the Daytona Prototype. The most important thing to remember when driving this track is not to overdrive the turns. You should be able to get on the gas hard at every apex. When I drive this track, the thing that goes through my head the most is "open the wheel as early as possible". The sooner you unwind the wheel, the sooner you can get back on the power. If you focus on trying to point your steering wheel straight as early as possible, you'll naturally start getting on the gas earlier and earlier.

You will get the most out of this review if you treat it as an active exercise. Watch your replay and look for the things I mention in my comments. To make this analysis, I ran iRacing in windowed mode, and flipped back and forth between this document and iRacing. You should do the same. Read the feedback for a particular corner, then watch yourself through that corner multiple times. I think you'll find that you'll learn a lot by hearing the theory, then immediately seeing the application as you work through this analysis. As always, we greatly appreciate your participation in the Orion Race School, and we welcome and feedback and comments you can give us to help us better serve you and the sim racing community.

2) Technique

Your pedal technique is very, very good. You're very smooth as you get on/off the brake and throttle pedals. Your steering inputs are very smooth, which is great. The only real area I saw for driving style improvement is in unwinding the wheel as you exit the turns. You have a tendency to hold your steering input too long, which prohibits you from applying the throttle as early as possible, and reduces the grip of your front tires.

3) Turn-by-Turn

- Turn 1
 - The Goal: As I approach the corner, I'm looking for the second set of cones, which is my braking point. The track starts to go downhill while you're turning in, so you want to turn in a little bit early because you know the car will start understeering. I start my turn in around the last cone, although I'm not consciously looking for that as a turn in point. Instead, after I know I'm going to hit my braking point, I turn my focus toward the apex, and the steering input happens naturally. This corner is very fast, so it's important to start looking for the apex as early as possible. Like the rest

of the corners, you want to be 100% on the power at the apex, and open the wheel as early as possible.

- Comments: Your braking is good here, but you're turning in a little bit late. This means that you have to slow down a little bit more at the apex, and your apex speed is 3 MPH less than mine. Your throttle application is very good, so with the earlier turn in, you should be on the limit in this corner.
- Turn 3
 - The Goal: For me, this is one of the hardest turns on the track. There aren't any great landmarks to use as a braking marker, so it's hard to be consistent on the entry. I try to look for the white line that corresponds to the 2 braking marker (the brake markers are on the wall to the left of the track...not very useful!). We're still going downhill at the turn in point, so the car will understeer here. It's crucial to make sure you hit your apex here, and for me that means I have to turn in earlier than I think I should. This turn leads onto a long straight, so getting on the power is crucial here.
 - Comments: Here, you're over-slows the car a little bit just before the apex, which hurts your apex and exit speeds. I'm going 4 MPH faster at the apex, which translates to a 5 mph advantage at the exit. I think a slightly earlier turn in will help you out here, along with less braking on the entry.
- Turn 5
 - The Goal: *Another* downhill braking zone, which means reduced grip. I tend to run my brake bias further to the rear at Road America, and it's because of this turn. It's very easy to overload the front tires here and lock a wheel. I start braking at about the "2.5" marker. Aside from the downhill entry, this is a standard turn. Make sure you're getting on the power at the apex. If you have to delay your throttle application, you've entered too fast.
 - Comments: Your entry in this corner was very good, but just a tiny bit too fast. You can see in your replay that you keep the steering wheel turned well past the apex, which is an indicator that your apex speed is too high. Looking at the speed chart, you can see that I'm going 2 MPH slower at the apex, but come out 1 MPH faster.
- Turn 6
 - The Goal: And here's where the rear brake bias comes back to bite you. Another turn made tricky because of the elevation change. I start my braking while still on the uphill portion, but being careful not to lock the rear brakes at the crest of the hill, as the rear end becomes very light. To compensate, I usually use a large amount of throttle under braking here to keep the car stable. This is a corner where you can gain a large amount of time. It's very hard to brake late into this turn, which means most of your competitors will be braking early. You need to make sure you can stay on the limit through this turn, and you'll be able to pull away from

most other racers. Like all of the previous turns, this one has a tough entry, but a standard exit. Full throttle at the apex!

- Comments: This is a turn where I think you'll find a good chunk of time. You're braking a little too early, and you can see on the speed chart that I'm hitting a 4 MPH higher top speed before I start braking. It's hard to brake late here because the rear tires want to lock up, so compensate with a lot of throttle. I like your technique of doing your initial brake application while you're still at full throttle - it looks like it keeps the back end in check here.
- Turn 7
 - The Goal: Be brave! You need to carry as much speed as possible through this turn. In qualifying trim, you shouldn't be lifting off of the throttle more than 20%. Don't use the brakes here, just a lift, and back on the gas as early as possible. This is another "bravery" turn like Turn 6, and a great place to pull an advantage on a competitor. This turn also leads to a good passing opportunity, so it's important to be strong here.
 - Comments: I think you'll probably find a large gain in this turn. You're using just a tiny bit of brake, but that means you're 3 MPH slower at the apex. This translates to being 3 MPH slower at the exit, and 3 MPH slower heading into the braking zone for Turn 8. Try to get through this turn with just a slight lift off of the throttle (around 20%), and don't touch the brakes. You might have to turn in a little earlier than you think, so if you run wide of the apex, back up your turning point a little more.
- Turn 8
 - The Goal: Whaddayaknow, another downhill braking zone. We should be good at these by now! I use the white line on the track that corresponds to the #2 brake marker as my reference, and I start braking a little bit before it. Since we're braking downhill, our braking distance will be slightly longer than usual, and it's very easy to overshoot the entry. Make sure you're going slow enough to be full power at the apex. I tend to run over the apex curbing here a little bit. This is one of the few curbs you can nibble on without instantly spinning.
 - Comments: This is another turn that's hurting you a bit. Your initial braking is good, but you aren't trail braking enough in this corner. If you watch your replay, you come completely off of the brakes pretty early, and the car stops turning. This causes you to understeer at the apex, and you hold the steering input too long on the exit (one of those indicators that something is wrong). Your actual speed isn't too fast - I was 5 MPH faster and the apex - but it's just that the car wasn't balanced correctly while you were entering the turn, so you had less front grip, and therefore couldn't take the turn as fast. Try extending your trail braking here and carrying a little more speed at the apex.

- Turn 9/10
 - The Goal: This turn is very hard in the Daytona Prototype. After exiting Turn 8, I move as far left as possible to make the entry into the Carousel as wide as I can. this turn has an interesting elevation change - the first half is uphill, and the exit is downhill. As the uphill section ends, I lift off of the throttle a little bit in anticipation of the understeer. As soon as the car settles back down, you want to get back on full throttle as you head down the hill toward the exit. It's important not to get too greedy here. The exit is the important part, not the middle of the corner.
 - Comments: You're doing very well here. You overdrive the middle of the corner a little bit, but that's very easy to do. You can see how you start pushing out as you crest the hill, and you have to tap the brakes a little bit to gain some front grip. A slightly bigger lift earlier on should set you up for a better exit.
- Turn 11
 - The Goal: This corner is flat out, and you probably have to turn in early than you think. It's important to make sure you're tucked in close to the apex curbing (but don't touch it!), so if you find yourself wide at the apex, turn in earlier next time.
 - Comments: You're taking this turn flat out, which is what's important. You turned in a tiny bit late, but it didn't really affect your speed too much. For safety in the race, you might want to work out an earlier turn in point that keeps you closer to the apex.
- Turn 12
 - The Goal: This is one of the trickier turns on the track. I brake at the 3 marker in qualifying trim. This corner is tricky because of the surface changes. It's very tempting to keep the steering wheel turned more than you need to. The black exit curbing is part of the track! Once you're near the apex, you should be looking at your exit and opening the wheel. This is a turn I have trouble with, and the most useful thing I can do is make myself look for my exit as early as possible.
 - Comments: You're very good in the first half of this turn, but just need to get on the gas a little harder at the apex. You got a little loose on the entry, which threw off your exit. I'd imagine most of the time you do just fine in this turn.
- Turn 13
 - The Goal: Flat out in qualifying trim, and very important for a good lap. You have to really hit your marks here or else you'll run wide. Make sure you're tucked up against the apex, and open the wheel as early as you can. The car will tend to get loose on the exit, and the best thing you can do is have as little steering input as possible.
 - Comments: This is a turn where you're losing a lot of time by lifting. My minimum speed is 5 MPH higher through this turn, which is a big difference. Just work on keeping your foot to the floor through here, and you'll notice a big drop in your lap times. Of course, in race trim you might have to lift, but for qualifying, go for it!

- Turn 14
 - The Goal: The exit is the most important part here, but you also don't want to give up time on the entry. Entering this corner, make sure you position your car to the left side of the track to make the turn as wide as possible. Since you'll have the wheel turned through the whole braking zone, you won't be able to use 100% brake force. My braking force generally peaks around 60-70%. Like Turn 12, you're going to be tracking out past the exit curbing, which means you can open the wheel very early in this turn. When I get it right, my wheel is pointed straight at the apex.
 - Comments: You're doing well here. You're focusing on a good exit, which is the important part. For the entry, you weren't quite all the way left before turning in, which means you made the turn a little tighter than it needs to be. Your apex speed is 2 MPH faster than mine, but your exit is 2 MPH slower. I'm not sure if you overdrove the turn though. When you get on the power, you hold it at about 90% for a while. I think the car might've been able to take 100% power at the apex, and your exit would have been even with mine I bet.

4) Suggestions

Your overall driving style is very smooth and good, and you're taking most of the turns near the limit. Here is how I would prioritize which turns you should work on, based on where you'll find the biggest and easiest gains in laptime:

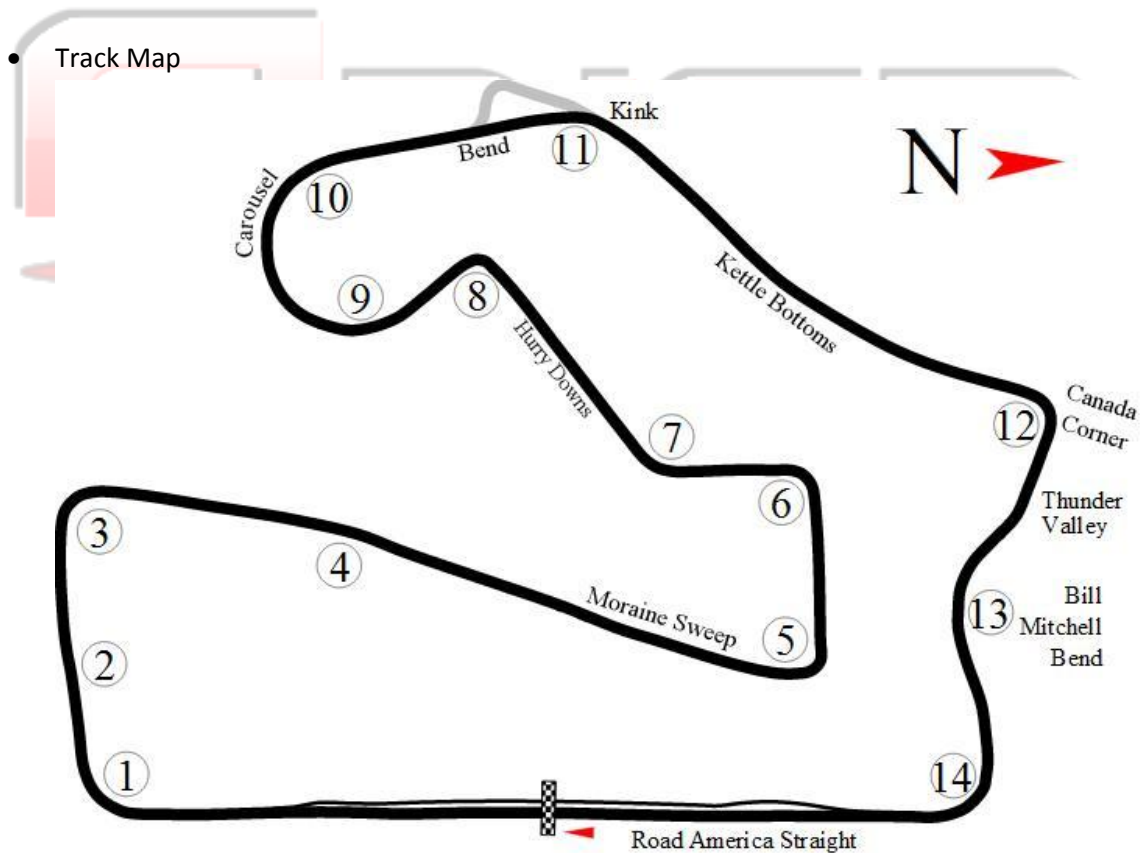
- 1.) Turn 13a - This is an easy place to gain a lot of time. Just keep the throttle to the floor, and find a turn in point that works. A slight lift is OK, but full throttle is the goal.
- 2.) Turn 7 - This is another place where you can gain time easily. Don't hit the brakes, and really focus on keeping as much throttle on as you can as you go through this kink.
- 3.) Turn 8 - Carry your trailbraking further, and you'll pick up a bunch of speed here.
- 3.) Turn 3 - Work on keeping your car on the limit in the midcorner phase, which will probably require a slightly earlier turn in to compensate for the understeer you'll get. You'll carry this extra speed all the way down the straight, so every MPH counts here.

In general, keep an eye out for how early you're unwinding the wheel. If you have the wheel turned well past the apex, re-evaluate what you're doing in that corner. You might need to slow down more prior to the apex, or you might need to trail brake more to give the front end more grip. I think this is the biggest driving style change you can make that will enable you to consistently go faster everywhere.

5) Reference

- Cornering Speeds

	Frosty			Brian			Delta		
	Straight	Apex	Exit	Straight	Apex	Exit	Straight	Apex	Exit
Turn 1	174	99	111	174	102	113	0	3	2
Turn 3	143	76	97	145	80	102	2	4	5
Turn 5	174	58	75	174	56	76	0	-2	1
Turn 6	108	67	89	112	66	89	4	-1	0
Turn 7		111	124		114	127		3	3
Turn 8	144	58	80	147	63	83	3	5	3
Turn 9/10		109	131		110	132		1	1
Turn 11		152			152			0	
Turn 12	174	72	90	175	72	93	1	0	3
Turn 13		116			121			5	
Turn 14	133	81	101	136	79	103	3	-2	2



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