ICRA Car Setups and Driving Tips for IndyCar Racing II

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This document was available as a Windows HLP file. But since those are not easily opened in current versions of Windows anymore we converted it to PDF.

1. Australia

Down under - Surfer's Paradise - when I was a child, I've always wondered why Australians simply fall off this world, sitting on the wrong side of mother earth with their heads upside down.

Well, at the Surfer's Paradise racetrack you'll get airborne sometimes, but that's due to reckless driving rather than malfunction of earth's gravitational system.

At Autralia, you have two choices - either you drive a realistic lap, or you try to make it through the fourth chicance full speed.

Whenever you see one of these low 1:25xxx or even 1:24xxx laps - be sure that guy plunged head on in fifth or sixth through that chicane, for good or for bad.

Australia is made up of long straights, interconnected by tight corners - and thus requires a hybrid setup like Long Beach.

Because of the long straights, use low wing settings. As always, more front wing will give you good grip at the front tires, without the tradeoff of lower top speed, while a lose rear is easily controlled with careful application of throttle and brakes.

In the corners you'll need all the grip you can get. On the other hand, since there aren't many of them, you don't lose much if the car doesn't respond too readily to your steering input. So, set the a-r bars to 6, which is a good compromise.

A brake bias of 6 allows you to steer into corners under braking.

Australia Setup

Fuel: 6,0 **Steering Lock**: 18 **Front Anti-Roll Bar**: 6 **Rear Anti-Roll Bar**: 6 **Stagger**: 0,000 **Brake Bias**: 6 **Front Wing**: 13,00 **Rear Wing**: 8,00	**Gears**: *1st Gear*: 11,80 *2nd Gear*: 9,60 *3rd Gear*: 8,00 *4th Gear*: 6,90 *5th Gear*: 6,00 *6th Gear*: 5,30

Right Front Tire	*Pressure*: 34 psi	*Camber*: -2,00	*Shock*: 90%	*Compound*: soft
Right Rear Tire	*Pressure*: 34 psi	*Camber*: -1,60	*Shock*: 60%	*Compound*: soft
Left Rear Tire	*Pressure*: 34 psi	*Camber*: -1,50	*Shock*: 85%	*Compound*: soft
Left Front Tire	*Pressure*: 34 psi	*Camber*: -2,10	*Shock*: 90%	*Compound*: soft

At Australia, I'd suggest you use different shock settings on all four wheels. Since at Australia, there are not many corners, and most of them are left hand corners, setting the car up specifically for those left hand corners will give you an advantage. You can determine which tires have to carry the highest loads by reading the tire temperature values. Hot tires carry higher loads. In order to evenly distribute the car's weight on all four wheels, reduce the shock settings on wheels with hotter tires, and increase them on wheels with colder tire temps.

You might also experiment with the tire pressure, but I didn't do it because I felt it was unnecessary. BTW, softer shocks at the rear end of the car are a good measure against the oversteering tendency induced by the low rear wing setting.

Don't forget to adjust camber. Your driving style may require camber settings different from mine!

Australia driving tips

Onto the track now! First, relax. Australia, although an easy-to-drive circuit, requires good nerves, as the chicanes have to be taken at relatively high speeds and hence extremely accurately. We'll start from within the pit lane this time. Go flat out until you can see the first chicane. Be at the right hand wall when you approach the marker, brake at the marker, and try to move over to the left to a point this side of the apex. Continue braking into that first section of the chicane. Try to clip the corners, making the S a more stretched, less pronounced shape. As soon as you are in a position where you can avoid hitting the wall at the apex of the right hand section of this chicane, allow the car to move back over to the right, still braking, but gradually releasing the brakes. Aim for the a point to the right of the left hand wall at the exit of the final section of that chicane.

While you are off the throttle through all of the initial sections of the chicane, now's the time to start accelerating smoothly. Allow the car to drift over to the right hand wall, because that's where it will go anyway, controlling its travel mainly using the throttle. Accelerate flat out for a moment. The following chicane is faster than the first one, but the technique is the same.Basically, you have to take the second chicane with a flick of the wheel or stick, whatever you use. Plunge right into it, then give the stick or wheel a short twitch - and that's it. If you do it right, the car will coast through that chicane and will apparently crash into the wall, but actually this time the wall isn't as near as it appears to be. Maybe you could try and download my replay from lib 14.

The long straight is taken flat out, of course. Stay on the right hand side as you approach T5 which leads into View Avenue. Brake hard for a while, then gradually release the brakes as you turn left. Mover over to the left quite early, and approach the moment where you will do the actual turn with the car pointed already more or less at the apex at the left hand wall.

As the car tends to understeer at this moment, let go of the brake. Or, try to steer less. Steering too much is also a possible cause of understeer.

T6 again is approach on the right, and is taken using the same technique as T5. On the back straight, accelerate full. Brake for T7/T8 near the final marker on the right hand side, but this time approach that chicane by moving over to the left slightly late. You can make it in second, BTW. Don't drive to the left any further than you absolutely have to, and try to cut T8 as best you can. Again, accelerate flat out.

The following two corners are taken flat out. Approach the final chicane in the center of the track. This time, you must not use a wide line, but a narrow line, again giving the stick or wheel only a slight twitch.

Tray to move over to the left following the wall, i.e. steer where the wall recedes. As you've pointed the car slightly to the left, try to aim it on as straight a line as possible through the remaining section of the chicane.

Accelerate again as you approach Conrad Jupiter's corner. This one should be approached on the right hand side, and should be take "classical style" in first.

Accelerate hard, but take it easy into the following corners, as too much sliding will cost you more time than some hesitating.

T13 is also taken classical style. After having passed the apex, it is essential to bring the car into a smooth S that takes you to the right as you leave T13, and smoothly back to the center of the track as you prepare for entering T14, the only true right hander at Surfer's paradise.

As you leave T14, your laptime counter should say something in the range of 1:13.xxx.

Accelerate again as you approach T15 and the Ampol Hairpin. Those two have to be seen as one turn. Enter T15 more or less on a straight line that takes you from the right hand wall to a point near the left hand wall at the exit of T15. You'll brake until you've reached that point. At that point you should be slow enough to be able to point the car to a point near the wall at the exit of T16. Accelerate smoothly, as you don't want your rear wheels to dance a waltz but you want them to build up grip immediately.

This is it. The rest is flat out to the s/f line. The best ever lap I did at Australia without doing the final chicane full speed was a 1:25.124, BTW. Hence the name of the setup. However, I did touch the wall in T8 - bad luck.

I'll refrain from making any comments on the Ccs. Outbrake them into T5, or out-accelerate them out of T6. Those are the two safe points to pass. Everywhere else it gets risky.

2. Cleveland

This is the Cleveland Track Guide for Indycar Racing 2

Cleveland - an Indycar race on an airfield. And air is what you get at Cleveland - lots of air, and no landmarks.

On your initial laps, you're in danger of getting lost, and there are only few markers or landmarks. At Cleveland, brakepoints and turn-in points are best determined by setting two relative positions into proportion, and by guessing the space you'll need in order to make it through that turn at max possible speed. You don't brake often at Cleveland, but in some of the corners you just touch the brake pedal briefly in order to give the car's nose the right direction. One of the secrets of Cleveland is - let it roll. Try to use the entire width of the track, Don't turn where the track tells you to, instead, turn where you need to in order to get through corners fast!

Max speed - there are two 1st gear turns and two 2nd gear turns in Cleveland. Two turns are taken in 5th gear, one in 4th and two in 3rd. So, the policy is clear.

You'll need speed on that track, but you'll also need grip. You'll need the car to be stable, yet it has to be nimble enough to flip through these alternating corners without much wobble and sliding. Losing speed in turns cannot be made up for on the straights, because the straights between the corners are short.

So, let's get a decent hotlap setup first.

Cleveland Setup

Fuel: 6,0 **Steering Lock**: 12 **Front Anti-Roll Bar**: 8 **Rear Anti-Roll Bar**: 8 **Stagger**: 0,000 **Brake Bias**: 6 **Front Wing**: 18,00 **Rear Wing**: 12,90	**Gears**: *1st Gear*: 10,90 *2nd Gear*: 9,00 *3rd Gear*: 7,90 *4th Gear*: 6,80 *5th Gear*: 6,00 *6th Gear*: 5,70

Right Front Tire	*Pressure*: 36 psi	*Camber*: -2,00	*Shock*: 100%	*Compound*: soft
Right Rear Tire	*Pressure*: 36 psi	*Camber*: -1,60	*Shock*: 100%	*Compound*: soft
Left Rear Tire	*Pressure*: 36 psi	*Camber*: -1,50	*Shock*: 100%	*Compound*: soft
Left Front Tire	*Pressure*: 36 psi	*Camber*: -2,10	*Shock*: 100%	*Compound*: soft

Set the front wing to 18, and the rear wing to 12.90, to start with. As you can tell, this combination is designed to get you good grip at the front end to permit precise steering, but still allow you be able to maintain fairly high speeds - at the expense of rear end grip. The car's going to be loose at the rear end. So, you'll have to take it easy on the throttle, and sometimes even on the brakes to avoid the rear end from swinging around.

Since the cornering speed is fairly high in many of the turns, you don't need _that_ much wing - the increased airflow will give you better downforce than you'd get in slow turns from slow airflow. Remember that the front wing doesn't limit your speed as much as the rear wing does, so you can use a higher setting there.

To give you an example, raising wings to 16/13 from 11/11 gained me 1.8 seconds; raising them from 16/13 to 18/14.1 gained me another 0.5 seconds. Then lowering the rear wing from 14.1 to 12.90 brought me another 3 tenths in laptime during hotlapping sessions.

As for shocks - well, what did you expect from me (if you've read the previous guides) - set them to 100%! And use plenty of a-r bars as well. That'll make you faster. Full stiff a-r bars gained me about a tenth of a second in tests, as opposed to a-r bars set to notch 2. Of course, this has to do with my driving style, but that's all I can talk seriously about anyway. Both parameters - shocks and a-r bars - affect the grip in corners, the braking performance and the agility of the car. Using hard settings for both will always give you better max cornering speed, however it'll also make the car snappy and more difficult to control. Sometimes you may be faster with less rigid settings, simply because you are unable to master the hard settings.

Tire pressure should be 36 on all four wheels. If the car is too slippery, try 35. Not much of a difference, but anyway. Remember that this is a qualifying setup. You may get temperature

problems with the LR or LF tire, depending on your driving style. There is no remedy for this. You'll have to get your time in one clean lap, in this case.

Set the gears so that 6th maxxes out near the entry point into T2 - you knew this of course. First gear should be around 10.90, and the others at regular intervals in-between. This way you'll get decently short intervals and always enough engine power on this fast track. You don't need a short 1st. If you set 1st gear too short, you'll have to set the intervals between the others too long., and that will decrease the acceleration values you can achieve.

Don't forget to adjust camber as needed, and steering lock to your liking. If you are in doubt as to whether the camber is correct, reduce tire pressure and do a few laps. With reduced tire pressure, incorrect camber will show more clearly. Then adjust camber and raise tire pressure again.

Try a value of 12 for wheel lock to start with, but this depends on the controller you use. As a rule of thumb, you don't need much wheel lock at Cleveland, lower values will make the car easier to handle.

You might consider setting some stagger - some drivers do that on road tracks as well - but since I am doing fairly well on road tracks without it, I think this is not a necessity.

For the race, you'll need a different setup. After maybe 10 gallons have been burnt, the car will start to get nimble at the read end. So, I'd suggest you try one or several of the following countermeasures. Use the one(s) you like best.

First, depending on the environment temperature set for the race, from maybe 80 degrees up, depending on your driving style, you'll want to use medium compound tires on both left wheels. Then, in order to reduce the nimbleness of the rear end, either increase the rear wing to maybe 14, and/or soften the rear shocks to maybe 85, and/or set the front a-r bar harder and the rear one softer. I'd use one of the former two measures from the start, and keep the a-r bars as an emergency measure if during the race you find out that the car loses it's balance.

For everything from 27 laps up, you'll need 40 gallons of fuel, although the AI pit a little later than you.

Cleveland driving tips

Ok, all set. I suggest you mount your bicycle now, and crank around the track 10 or 15 times in order to get to know the whereabouts. Do that now. Or, if you don't feel like riding your bycicle now, download the file jt_cleve.zip from sprtsims lib 14. This file contains a lap that show's exactly the driving I'm going to describe in this guide. It does not contain my fastest hotlap at Cleveland (which is in _clev2.zip), but the former replay shows a cleaner line than the latter.

Now fill up your car with 3 gallons of fuel (well, fill in 5 if you like, but Cleveland is one of the tracks where two laps are enough to get good hotlap times, and every additional lap only wears off your tires. After two fast laps at Cleveland, the tires are no longer in perfect condition anyway), because we're going to do two laps only.

Lap 1 is a warm-up lap. Try not to burn your tires on that lap, don't slide on the warm-up lap and don't make the tires squeal through corners during this lap - try to have your left rear tire at 185-190 degrees at the entry to the final chicane before you re-enter the s/f straight (i.e. when you reach marker 2 of the final straight, just before you enter the right hand turn). That'll give you sufficient tire temp to be fast on the following lap, but still give you almost flawless grip from this set of tires.

We are at marker two of the final straight, just before the chicane. Stop now. You should come to a standstill at the left hand wall, maybe the car's nose point slightly to the right already, fairly close to marker 1.

Hit the throttle! Aim for the right hand wall at the exit of that right hand corner (actually, it should not be much of a corner for you at this moment). Once you are past that point, or even slightly before you reach it - depending on how you enter that corner, pull over to the left in order to reach the apex of the left hand corner that takes you onto the s/f line. Do so decidedly - don't hesitate. You gotta get close to that wall. Then, let the car drift over to the right hand wall. You'll reach that wall and welcome it with an audible bang way before that patch of green if you missed the right line (i.e. extremely close to the left hand wall) for the previous corner, unless you use your throttle for controlling the understeer. So, use your reason to determine whether you are approaching that wall too rapidly, or whether the turning/understeering ratio looks like you'll reach the apex of your turning effort just after the point where the patch of green starts - because this is where you should end up this time.

On a race lap or at the end of a hotlap, you may even end up just to the right of the center of the track, if you found a perfect line through that previous corner.

At that point, you're probably in 3rd. Listen to the tires and keep them from squealing if possible. Remember - if they squeal heavily, slightly reducing the amount of steering will get you closer turning angles because the tires regain grip. This is true for _all_ corners at Cleveland! Reduced squealing tells you that you're on the right way. If this doesn't help, get off the throttle slightly for a moment.

Once you reach the apex, continue the long, extended sweep back over to the left without altering the angle. Pull over gently to the left hand wall, constantly accelerating. You should be in fifth way before you cross the s/f line with just two inches of air between you and the wall. Follow the wall flat out. Ok, now comes the difficult part.

T1 - a long right hander - lots of space, so nothing can go wrong; well, almost nothing. The problem is, that all drivers have that much space, and so your task is now to use it better than the others. You'll stay on the left a little longer than your screeching nerves will let you. Then pull over to the right and try to precisely hit the inside patch of grass at the apex of T1.

The turn-in point is not _that_ important at T1 - and neither is the line through that turn. It is more important to optimize the in-out times on whatever line you decide to take. You may try to precisely hit the tangent of T1 exactly when you are at minimum speed - slow enough for the critical amount of turning - and then to quickly turn and re-accelerate as smoothly and effectively as possible, doing the rest of the turning while accelerating. You may start into T1 from various points, but always try to start from as far to the left as you can.

However, you may also point somewhere quite far to the left of the tangent point, and turn the car there - this will let you accelerate sooner.

It is critical that you don't lose too much speed in T1. Try to find a line that will keep revvs up enough in 1st gear to allow you to accelerate quickly again.

To give you some idea - if you set the gears the way I described above, 10.90 for the first, the others at regular intervals above that - you should switch into 3rd when or just before the laptimes counter says 11.0 seconds, and into 6th at 14.8 seconds.

Brake quickly, not wasting much time with hesitating or sliding, and give the car its new direction quickly while it is slow enough to do so without sliding, and then to be gently back on the throttle as soon as possible, keeping a precarious balance between maximum acceleration and completing the turn into the following straight.

Then, let the car slip around the corner and try to to quickly move it's nose as far around the corner into the new direction as possible; then smoothly reapply throttle. Balance steering and throttle in such a way as to get maximum acceleration without tire squeal, and stay out of that patch of grass to the left. Get off the throttle for a split second if you have to. Remember - squealing slows you down.

Open up as you get faster, and continue the wide turn back to the apex of that long right hand turn that is actually a full-speed segment. Pass the inside apex of that almost-corner and let the car drift over to the left again. Now, you have two options.

In T1, you can lose as much as an entire second! So practice this turn until you get it right.

You might try to continue to T2 in a veeery long sweep, as if it was a very long corner starting already in the middle of the straight section, or you could try to reach that left hand white line right behind where that patch of grass starts, and take a moment to prepare yourself for the following right hand corner. If you think you don't need that time, give it a try; and make this a looong right turn, from the inside white line of the apex of the curved straight between T1 and T2 to the curved wall at the inside of the apex of T2.

Don't brake much for T2. You need to fly through T2 at the extreme right hand side, in such a way that you touch the patch of grass that protrudes into the track behind the wall. Remember - hotlaps always require two wheels on track. So, chose your line prior to approaching T2 (long curved or starting parallel to the left hand white line of the straight), then pull over to the right smoothly, and point your car's nose at the inside wall at the apex of T2.

Your speed through T2 should drop from maybe 175 to 155 mph.

After you turned right, release the throttle as much as is necessary to reach that point right next to the wall without much tire squeal, if you have to. You may also try to yank the wheel briefly in order to get the car to that point. If for some reason you don't manage to get near enough to that wall, slightly touch the brake for a split second in order to rectify things. Once you've passed that point in the grass, get back on the throttle if you can manage to stay in the center of the track or to the right of it, otherwise stay off the throttle. You'll drift to the center of the track, but should stay slightly to the right of it. I'm usually in 6th or 5th at this point.

Brake while turning left _early_, down to slightly above 100mph. Point at the inside patch of grass at the apex of T3. Even before you're reach the apex, go back on the throttle, but take it easy. You should take this corner at slightly above 100mph.

Try to avoid pushing the car into that turn and drift smoothly over to the right. Once you're sure you won't hit the grass, go flat out up into 4th. Then, brake gently (not full) and pull over to the left plenty early. Plan to skim through the grass with your two left hand wheels. You should actually have more or less completed the turn _before_ you reach the grass, so that you enter the short straight stretch on the left hand side and at a pretty small angle, almost going straight already.

Stay as far left as you can without using brute force, and accelerate full into second and 3rd. If you slip over to the center of the track, that's _not_ ok. It'll spoil your line through T5. Driving through T4 (left turn, behind you) and T5 (right turn, ahead of you) is like driving a huge S. Try to be as smooth as you can. For T5, make sure you have already turned several degrees before you actually reach the corner, and then aim at the white line at the inside patch of grass at the apex of T5. You should have completed half or more than half of the direction change at that tangent.

At this point, it is important to make no mistakes on the throttle. Don't brake, and don't accelerate for a moment, until you have the car's nose pointed at the grass ahead of you on the left hand side at an angle of no more than 35 degrees. Then smoothly apply throttle, shift up into third and 4th while lining up with the left hand white line. As soon as you are in fourth, pull back over to the right for T6.

Let me repeat an important fact. You don't actually brake for T2, T5, T6, T7 at Cleveland. You just slightly touch the brakes in order to re-ascertaing the direction the car is heading into. In the other corners, you may brake.

Again, plan on touching the grass with the two right hand wheels. You should have completed a little more than half of the direction change _before_ you reach the inside apex of that corner. Don't brake, but be off the throttle as soon as you start turning. Get back on the throttle when you safely can do so without skidding into the grass at the left hand side of the track, which should be shortly after you've left the grass.

Corners in Cleveland are kind of tricky; it is easy to end up in the grass since the 3D graphics seem to be a bit unprecise, somehow. T6 is a fast corner. I don't even shift down and go through there in 4th, but if you want maximum power at the exit, switch into 3rd. It is utterly important to accelerate early, but not full power, The trick is to accelerate early and still stay out of the grass. This BTW applies to all corners , but at Cleveland you even have to accelerate early where you wouldn't even think it's possible. Takes lots of practice time, this track.

When you're through it, take a look at the laptime. It should be 38/39 seconds now. When you shift into 5th, the clock should switch to 40. Keep accelerating until you have to turn in order to make it cleanly through T7. Again, touch the grass with the two right hand wheels. Don't brake, or if you do so brake only shortly, but be off the throttle and start turning early. You should have completed half the direction change at the apex of that corner. As soon as you're through the grass, accelerate carefully in 4th gear (unless you feel that this would make you spin or would take you into the wall), which should be at around 12000 or a little less.

When you have to shift into 5th, your laptime should be 46 or less. This shows that you have to take all corners at full speed. You brake - you lose . Accelerate until a short distance before marker 2, then brake full and immediately head over to the right. Aim at a point of the right hand wall where the wall has already started bending for the corner, but before the apex. Your speed will carry you further out anyway. Let that happen, but try to stay close to the right hand wall, and then proceed the way I told you at the start of this lap - with one exception - once on the s/f straight, don't pull over to the left. That'll get you another split second.

Ok, if you did it alright, you should have achieved a fair laptime. If you'd continue into another lap, you'd probably notice that your tires don't give you quite as much grip as on this one. The fast pace demands its price.

Now - was that exciting?

As for the CCs, they're as stupid as everywhere else. There is plenty of room at Cleveland, so passing should be no problem at all - yet they succeed in making it one. They cut into your line, they crash into you from behind, they zig-zag in front of you - oh boy.

Actually, passing is good at T1, at T2 if you have finished the pass before you reach the center of the track again (because that's where the CC is going to end up, and they don't brake for humans). I'd refrain from passing in the following passage, except for the short straight between T4 and T5, if you're fast enough there. Stay cool through T6, and maybe even T7, unless on the short straight in-between you're fast enough to make a safe pass.

Through the final chicane, try to move over to the left early if a CC is behind you, because he'll probably try to pass you there on the left - not thinking about you taking the line for the final corner.

Ok, this is it. Good luck for the race.

3. Detroit

This time, I'll take you on a tour around the Detroit track. Detroit is _a_lot_of_fun_ - it's actually all throttle and brake - you know what I mean. It consists of nothing but narrow corners of varying angles, with the tarmac cuddly enclosed by rather unrelenting walls. The track requires _a_lot_ of driver action. The secret is to be fast and smooth at the same time. An appropriate setup will give the driver that extra second he needs to cope with the Ccs.

Detroit setup

Fuel: 6,0 **Steering Lock**: 18 **Front Anti-Roll Bar**: 3 **Rear Anti-Roll Bar**: 3 **Stagger**: 0,000 **Brake Bias**: 5 **Front Wing**: 18,00 **Rear Wing**: 16,00	**Gears**: *1st Gear*: 11,90 *2nd Gear*: 9,70 *3rd Gear*: 8,50 *4th Gear*: 7,40 *5th Gear*: 6,50 *6th Gear*: 5,90

Right Front Tire	*Pressure*: 36 psi	*Camber*: -2,00	*Shock*: 90%	*Compound*: soft
Right Rear Tire	*Pressure*: 34 psi	*Camber*: -1,30	*Shock*: 90%	*Compound*: soft
Left Rear Tire	*Pressure*: 36 psi	*Camber*: -1,30	*Shock*: 90%	*Compound*: soft
Left Front Tire	*Pressure*: 36 psi	*Camber*: -1,90	*Shock*: 90%	*Compound*: soft

At Detroit, the first thing you have to be aware of is that you don't need ultra-high speeds, but lots of grip. So, use lots of wings. There's only one high speed section, and you'll gain more from having good grip in the corners than from that extra speed on the fast stretch. Also, with all that low-speed turning and accelerating, you'll notice that the car's rear is pretty lose. So, use a good amount of rear wing. Consider settings of F/R 18/16 for qualifying and 18/18 for the race. You don't need 18 at the rear, but it will help your left rear tire stay cool and make life easier in some situations.

Also, pay attention to tire pressure. The tires need to have good grip, give you maximum traction and yet let you drive precisely on the line. So, don't drop the tire pressure too low. With an 18/16 wing setting, you might consider using lower pressure at the rear end if the rear is too nimble, with an 18/18 setting use identical pressure on all four wheels. I'd suggest LF/RF/LR/RR 36/36/36/34 for the former wing setting (i.e. Q), and 36/36/37/34 for the latter (i.e. race). You might consider using equal pressures on the left and right rear wheels, like L/R 36/36 or 37/37 as well, since temps at the rear tires get pretty high, and temps in the range of high 250s or low 260s aren't good for the grip.

As for the gears, you might set 6th in such a way that revvs exceed 13.000 at the end of high-speed T9, and set the other gears at even intervals. First should be 11.90, since you need low speed power.

Use hard shocks settings, I'd suggest 90% to 100%, to ensure that the car responds to control input quickly and without wobbling. Set the a-r bars to values of 3. That distributes the weight as evenly as possible on all four tires in corners (tire temps will reflect that after a couple of laps), so as to give you the maximum grip possible, without making the car respond like a Mack truck.

If you use different rear/front wing settings, you might consider setting the a-r bars one notch lower at the end of the car with less wing, but I wouldn't do that. I'd suggest you use 18/18 wings, 100% shocks, a-r 3/3 for the race. Don't forget to adjust camber, because that'll give you some extra grip. Wheel lock could be 19 for sticks and 24 for wheels, but you'll have to determine the appropriate values for your specific combination and preferences.

Of course you will want to use full turbo boost , although 7 or 8 might do as well for the race, and might make it easier for the drivers in TA. Use whatever suits you best.

Detroit driving tips

OK, fill in 10 gallons of fuel, and let's go. We'll start in the pit lane. Take it easy there, the first turn inside the pit lane is _low_ speed. Do one slow lap, and meet me at the s/f line.

Don't forget that whatever you do at Detroit, do it carefully. I.e. don't step on the accelerator like an elephant, but move the throttle gently to full. And don't just release the brakes with a snap. Release them gently, giving the car time to adjust to the new power vectors.

Ok, there you are. Already in 6th, we continue to accelerate until the final marker. There, we hit the brakes full and smoooooothly pull over to the right, somewhat earlier than you'd expect. In T1, we want to be on the inside slightly before the apparent tangent of that turn. While pulling over, brake down into the mid-80s/low 90s, and shift to 1st or 2nd. Try you apply some throttle while you are in that turn - I usually brake late until just before the tangent and then gently accelerate across the apex - and then accelerate while drifting to the left hand side of the track. Pull over to the right again while accelerating full and then try to hit the grass at the tangent of T2. At the entry of T2, you should already be fast enough to shift into 4th, but you might consider over-revving the engine for the extra power it takes to swing the rear aroung somewhat. At Detroit, in a couple of turns I do what I call pumping. I use throttle to make the rear of the car swing around somewhat to shorten the angle in the corners. I also do this in T2. Of course you'll never do this at the exit of a turn, because there it'll cost you lots of time. You'll do that only in turns where you already are at max speed. When you're touching the grass at the tangent of T2, shift to 4th if you havn't done so already and drift over to the right hand side accelerating flat out. It is up to you to decide whether you want to switch to 5th or over-revv the engine in 4th.

Pull over to the left hand side again and brake to the mid-70s while pulling over to the right. T3 needs to be hit a little late, so try to pull a little wide from the middle or the left side of the track before heading over to the right. This time, try to hit the grass just at the tangent of the turn and let the car drift to the left. Take it easy on the throttle there, and watch your steering input; reduce it early if necessary to stabilize the car. Accelerate slightly, until the car is stable, because in that turn it is usually rather loose. Then apply full throttle, pull over to the right again and accelerate flat out through T4, pulling back over to the left to end up on the left or in the middle of the track when exiting from T4 (this could be seen as two left turns as well). You're probably in 5th gear now. After having left T4, brake to around 70mph (depending on your lateral position on the track).

T5 is a plain vanilla corner. Hit the grass at the tangent and drift over to the left, aiming almost at the grass at the inside of the entry of T5, but not quite. Don't accelerate hard, maybe into the low 80s, and brake early so as to avoid overshooting the entry into T6.

Enter T6 on the left hand side, but with a little tarmac between you and the grass. T6 is slow, no matter which line you drive through it, so by driving a wide line, you give away valuable meters of track, unnecessarily increasing the distance you have to drive.

Stay left. As soon as you are beyond the tangent, smoothly apply throttle, and accelerate full as soon as you can handle it. After staying left briefly, you're at the ingress point for your trip through T7, where you'll probably be planning on mowing some lawn; but it's faster if you don't. This is true for all tracks: shortcutting through the grass only makes unexperienced drivers faster. If you can handle it, stay on the tarmac and you'll be faster.

Pull over to the right a little early. If you can do so without losing the car, stay on the throttle until you are on the grass - you should be in 2nd here (2nd provides more power, and is easier to control than 1st and might let you accelerate faster from an overall point of view, but honestly, I'm usually in 1st), then briefly release the throttle somewhat in order to stabilize the car. Depending on your driving style, you might consider letting go of the steering for the twinkle of an eye. As soon as you're back on the track with all four wheels, smoothly reapply throttle, try to avoid that wall and accelerate full as soon as you can handle it.

I quite often stay on the throttle here instead of briefly releasing it completely, and just take it a bit easy for a brief moment, but you will definitely have to stabilize the car there somehow.

Stay on the left and accelerate full to T8. This one is a tricky right-hander. You should be able to take this corner in 1st or 2nd, at around 80mph. Stay off the throttle and watch the wall. At first sight, it appears to be a perfect circle, but it is not. Rather, an initial first bend is followed by a short straight section, then again another slight bend leads into the very long right hand corner that follows.

Try to hit the end of the first bend of the wall in such a way that you exit in parallel to that short straight section of the wall, and pretty far to the right hand side. That will help you avoid hitting the left hand wall. Stay off the throttle here fow a moment, or only touch it lightly. If you come out parallel to that straight little stretch of wall, you'll be able to get back to full throttle gently right away, without hitting the wall, and then you can accelerate flat out.

T9 is a long right-hander, T10 is a fast left-hander. Through T9, stay on the right hand side to keep distances short. Enter T10 from the right hand side and don't brake. Pull over so as to exit T10 on the left hand side. Stay on the throttle for a little longer, then brake for T11, a long right hander. I frequently use the lack of traction at the rear of the car you get when braking hard to swing the rear slightly to the left in order to get to the inside wall early, which allows higher exit speeds from that turn. Well, actually it's two turns anyway, T11a and T11b, but drive through it as one, with the tangent being the little straight stretch between the turns. Pull over to the right hand wall while entering T11a. You should be in 1st (if you're too slow) or 2nd gear and your speed should be in the 80s (see above) or low 90s. Don't apply much throttle until you are past the tangent other than trying to bring the rear around somewhat to stay on the inside until just before you see T12; then apply full throttle and let the car drift to the left, just so that there is some tarmac between you and the grass at the entry point of T12.

Brake in time to be in first gear when entering T12, a narrow left-hander. At the entry of T12, you ought to be on the left hand side, with some grass... well, I said that before. Enter T12 without accelerating much, but once you are one third through that turn, increase throttle gently and let the car drift to the straight right hand wall at the exit of T12.

You should be revving high in 2nd now, preparing to enter T13. At the entry of T13, I usually shift to 3rd. Touch the grass on the inside at the tangent, and then briefly release the throttle and reapply it to make the car's rear slide over to the right hand side slightly. Keep pumping the car around that corner. That's the fastest way around T13/T14. Aim at the center of the right hand wall between the exit of T13 and the entry of T14. You should more or less drift over to that point. Once you get there, continue pumping with steering and throttle to bring the car back over to the inside of T14, accelerating hard.

At the tangent of T14, brake hard and aim your car's nose at a point maybe two yards to the left of the grass at the inside of the entry of T15. You may brake into that turn but you must have enough control to stay on the inside (right hand side) line. Steer into that turn as early as you can without cutting the grass. Before the tangent of T15, reapply throttle and target the left hand wall at the exit of T15. Be smooth on both throttle and steering, so as to build up speed instead of just spinning the wheels and sliding around. At the exit of T15, take a look at your lap time. If it says 56, you're good. If it says 57, you're doing ok.

Accelerate full power up to 4th. Briefly after shifting to 4th, brake hard and aim for the inside at the tangent of T16. Drive through T16 in 1st or 2nd at 80-90mph. Stay off the gas just long enough to keep the car steady. Then accelerate hard and start turning right _early_ into T17. Try to drive as close to the right hand wall as you can. At this point, take it easy on the throttle to get better control over the car or try to pump again as in T13/T14. Through T17, you should be in 2nd or 3rd, doing between 97 and 112 mph. Accelerate as soon as you are beyond the apex, but take it easy until you're sure you won't hit the left hand wall at the exit of T17. Now it's flat out until you cross the s/f line.

As for the CCs, you can imagine that passing is difficult at Detroit. However, there are good occasions for passing. The main strategy for passing will be braking later than the CCs, trying to be on the inside of a corner and pass them, or accelerating earlier than them.

I did a practice race from the end of the grid at OPPS 105. I had passed 24 cars after 20 laps, which shows that it will probably not be overly difficult during the race. Just be careful who you pass and take some time to watch them. Some of them drive weird lines, so stay behind them and don't play hazard. In particular when the track is a bit crowded ahead of you, T1, T3, T5, T8, T11, TT15 are turns where the guy ahead of you might just stay in (or drive into) the middle of the track or even cut into your line surprisingly, even if you are _off_ the groove, for no apparent reason at all.

I'd say that there are good chances for passing in T3, T5, T8, T15. You can pass in most other corners as well, but it's kind of tricky there.

Well, I think this is it for now. I hope you'll enjoy the race. Good luck to you all.

4. Elkhart Lake

Hi there,

the following guide was written by Georg Naujoks, not by myself. I didn't even edit it, because I think it's perfect. Georg is one of the hotshoes in the Compuserve SPRTSIMS forum, so his setup tips are as valid and as valuable as mine. Thanks Georg for saving me some work ;-)

Elkhart Lake setup

Fuel: 8,0 **Steering Lock**: 10 **Front Anti-Roll Bar**: 7 **Rear Anti-Roll Bar**: 7 **Stagger**: 0,000 **Brake Bias**: 7 **Front Wing**: 13,00 **Rear Wing**: 8,00	**Gearbox**: *1st Gear*: 11,90 *2nd Gear*: 9,10 *3rd Gear*: 7,60 4*th Gear*: 6,40 *5th Gear*: 5,60 *6th Gear*: 5,10

Right Front Tire	*Pressure*: 40 psi	*Camber*: -1,80	*Shock*: 70%	*Compound*: soft
Right Rear Tire	*Pressure*: 36 psi	*Camber*: -1,30	*Shock*: 50%	*Compound*: soft
Left Rear Tire	*Pressure*: 33 psi	*Camber*: -1,10	*Shock*: 60%	*Compound*: soft
Left Front Tire	*Pressure*: 39 psi	*Camber*: -1,80	*Shock*: 50%	*Compound*: soft

Load the ACE setup and let us start from there.

Fuel: We only need 8 gallons of fuel which is enough for 2 flying laps (if you screw up the first lap you have another change, happens to me more than I want it).

Stagger: I don't use stagger but if you want you can use a little negative stagger to help controlling the car in the right-handers like for example the long Carousel.

Wings: They are almost perfect but let us raise the front wing from 12.40 to 13.00 for a little more grip and stability at the front and let us lower the rear wing from 8.40 to 8.00 for a little more topspeed.

Gears: No need to change anything here, even although we changed the wings. You should set the 6th gear so you rev out at 13.500-14.000 rpm at the long straights.

Roll-Bars: I think this has a lot to do with personal preferences. I like a very stiff setup for quick reactions to accel- and steering inputs. The drawback to an stiff setup is that it's unforgiving for

driver errors so as long as you don't feel comfortable with car and track I wouldn't change the roll-bars and shocks. For my Elkhart Lake setup I put both roll-bars and the brake-bias to 7.

Tire-pressure: As you learned in the manual we have to make the tire temperature even over an given tire (i/m/o), therefore set them to 40/36/33/39 for RF/RR/LR/LF.

Shocks: Well, I have read a lot of theories about shock settings. I'm sure most aren't that much off but there is only one real theory, isn't it ? Of course my theory is the one to use, actually it isn't mine but Doug Arnao's one.

It would be to much to explain the whole theory here (maybe Doug will do a separate article for SRN sometime ?) so here it is in quick overview:

What your *really* doing with the shocks is balancing the cross *weights* while in the dynamics of cornering. Look at the tire temp's like your looking at a set of corner weight scales, and get the cross weights/tire temps equal.

The car is talking to you through the the tire temps - screaming at you look!

So take a close look at your tire temps after you have done some laps to warm-up the tires. Add the tire temps of RF+LR and compare it to the sum of LF+RR. Try to get them as equal as possible. We are not talking about a difference of

2 or 3F here, but it makes a big difference if the crossed tire temp's are only 15-20F or if the difference is 50F and more.

The total chassis stiffness is a matter of trial and error. If you raise the total stiffness of the setup to say 70/100 100/70, you will probably have trouble putting down the power exiting slow corners. If you half the numbers to 30/45 45/30, the car won't change direction as quickly as you might like.

Now for Elkhart Lake I have changed RF to 70% and LR to 60% from the ACE setup and left the other two at 50%

Driving Tips for Elkhart Lake

A quick lap around the track:

I will use the corner numeration out of the manual even although there are numbers at places where there is no real turn as for example T2 and T4. We have to start with the last turn going onto the long front-straight. Brake the car down at the marker 2 and be in 1st gear at marker 1. Now full on the gas-pedal to exit the last turn at around 80mph and as fast as possible. If we can accelerate early out of the last turn we will reach a much better topspeed at the end of the straight. If exited correctly you should pass the S/F-line at around 195mph.

We will be up to over 200mph when we approach T1, hard onto the brake pedal in front of the marker 2 board to slow the car down to to take T1 at around 125mph, down the gears to 4th or 3rd. Turn in early ! If you miss the turn-in point you will land into the gravel trap at the exit of T1 or in the worst case in the wall. Turn in short after you passed the marker 2 board.

Exiting T1 in 3rd or 4th we will do a short sprint to T3, up the gears to 4th and 5th. Short after the marker 2 board we brake the car down for T3 to take T3 at around 90mph. After we pass the apex of

T3 we must be early on the gas -pedal because following is a long straight and as the driving teacher told us "Accelerating early results in earlier and a higher topspeed".

That holds true for any track and also for any car so as long as you don't run off the track at the exit of turns you can't be early enough on the pedal!

Now down the long straight to T5. We again will go over 200mph, that's a great feeling, isn't it ? Okay, now back to concentration. Start braking in front of the marker 2 board and start turning in short after that, don't wait until you're past the marker 1 board with turning in or you won't make the turn! Take T5 at around 55mph. Short after we have passed the apex of T5 we can start again building up speed for the short sprint to T6.

So after T5 up the gears to 2nd and 3rd before we reach T6. At the marker 2 board which you almost can't see (you can also use the single tire mark on the right of the track) brake and shift down to 1st. Turn in early. You can take T6 a little faster than T5 but not much.

When you are through T6 accelerate hard and up to the gears to 2nd and 3rd. The following T7 you can take flat-out in 3rd or 4th, no problem. If you try to stay under or at least on the tire marks you can take T7 flat-out!

Up to 4th and 5th before we approach T8 at around 180mph. At the marker 2 board start braking and shifting down to 1st gear. Start turning in at the marker 1 board. Don't approach T8 to much on the right side of the track, it's easier than you think to get your right side tires into the dirt and when you start to brake while your right side tires are on the dirt your car will start to spin and you will end up in the off. Take T8 at 70mph.

Try to have your left side tires onto the gravel at the apex of T8, this will shorten the lengths of the turn and it also gives you a better exit of T8.

Okay, after you pass the apex of T8 up to 2nd, 3rd and 4th before we approach T9/10 also known as The Carousel.

If we do it correctly and hit the perfect line we don't have to brake at all for the Carousel ! Stay on the outside groove at T9 and 10 for a long time. Try to be at around 130-140mph for the whole Carousel.

Short after you're up to 4th you will reach T9, get off the throttle. Take T9 on the outside groove and shift-down to 3rd short afterwards. Get to the inside groove at T10 when the color of the wall on the outside changes from green to gray. Tip-toe the gas-pedal for the whole time at T9/10 so revs and speed doesn't fall down to much but avoid to be to fast so you don't run off the track.

Back on the gas-pedal when the color of the wall on the outside changes back from gray to green. On a typical hotlap I exit The Carousel at under 60 seconds.

Up through the gears, the following two turns (T11 and the left-hander without a number) can be taken flat-out.

We will be over 200mph again when we fly toward T12. Concentrate again, if you're lap is error-free until here you only have to do 3 more corners to reach a good laptime so don't screw things up here !

Start braking for T12 at the marker 2 board, shift-down to 2nd, start turning in at the marker 1 board and take T12 at around 80mph. Up to 3rd, the next right-hander can be taken flat-out.

For T13 only tap the brake-pedal for a short time, if you are brave enough you can even try to only lift the gas-pedal without braking at all for T13. Exit T13 at around 140mph. Use the dirt at the exit of T13 if you have to. As long as only your right-side tires are in the dirt you should be save.

Then back on the accelerator and into 4th gear before we reach the last turn. Brake and turn-in between the marker 2 and 1 board, down to 1st and finally again early on the gas-pedal for the long front-straight at around 80mph. If we exit T14 good we should reach 195 at the time we cross S/F-line.

Okay, that was a lap around Elkhart Lake. Now let's talk about the race setup.

Elkhart Lake setup for the race:

Not much to change. We have to adjust brake-bias for the heavier fuel load of the 40 gallons for the race. Set brake-bias down to 5. The RF tire temperature will be off with the heavy fuel load so raise pressure for the RF to 42.

That's all what has to be changed for the race. Now on to some race tactics regarding good passing places.

Race Tactics:

Generally speaking each places where you brake down from high speeds to slow speeds are good passing places, that's almost true for any track.

Avoid to pass other cars going into T1 because T1 is a very fast corner, you don't brake a lot for T1. The reason not to pass going into T1 is that you're still very fast even at the exit of T1. And if you're fast the track is very narrow. Now if there are even 2 cars side-by-side it's even much more narrow and you can easily end up in the dirt or in the wall at the exit of T1.

T3 is a much better and much safer place to pass cars. At T3 you easily can outbrake cars on the inside.

The same holds true for T5 the turn after the end of the long straight after you came out of T3 and accelerated down the long straight.

The next quite good place is under braking going into T8.

Although the opponent cars are driving rather slow in the Carousel I would avoid to pass there as the track is very narrow there and you quickly can land in the gravel and short after that in the wall.

The last turn going onto the front straight is another good place and coming out of the last turn and T3 are the next good places.

If you have to you can try to outbrake cars going into T6 but it's not easy to pass there.

5. Laguna Seca

Hi there,

Laguna Seca - the name already says that it is a dry place. Allegedly the dry sand even reduces the grip on that track. Well, my impression is that the track provides good grip, but is difficult to drive anyway. The corners at Laguna in ICR2 quite realistically model a specific characteristic of some Indycar tracks - they are bumpy, up-and-down tracks with all kinds of strange corners.

F1 tracks are rather streamlines, smooth and sleek, as compared to some Indycar tracks. Among these tracks are Detroit, Midohio and Laguna Seca.

At Laguna Seca, top speed isn't crucial. What you need is a car that allows you to drive a clean line through all sorts of different corners, and which sticks to the tarmac in all circumstances.

At Laguna in ICR2, the corners sometimes aren't what they appear to be. They must be taken on a line different to what your eyes make you believe at first sight. Hence, the main task for an LS newbie is to determine the optimal line, and the brake- and re-acceleration points.

Set the car up for good grip rather than speed. A good amount of front wing will keep your front wheels steady, without a tradeoff on the speed side. The rear wing setting should be less than the front wing setting, since the rear wings will cost you far more speed. Plus, less grip at the rear end can be balanced out by being careful on the throttle and by steering very smoothly.

Since Laguna is such a difficult track, we'll have to take all measures we can in order to assure that we get the maximum grip. We'll set the shocks in such a way as to assure the best possible temperature distribution across all four wheels - we want to have equal temps on all four wheels if possible. Plus, at Laguna we'll also use the tire pressure in order to even out tire temperature differences. This way, we make sure we get maximum grip in the grand total of the car's grip balance.

Don't forget to adjust camber properly according to your driving style.

As for the a-r bars, I'd set the front bar pretty stiff, because we want precise steering. At the rear, we can afford to set it to softer values, thus gaining some more grip. Brake bias should be slightly to the front, 6 is a good compromise. Setting it too far to the front will make the car difficult to control when braking into corners, while setting it too far to the rear will make the rear end go astray when braking into corners. Nothing in this world is for free .

Laguna Seca setup

Fuel: 6,0 **Steering Lock**: 18 **Front Anti-Roll Bar**: 7 **Rear Anti-Roll Bar**: 5 **Stagger**: 0,000 **Brake Bias**: 6 **Front Wing**: 17,00 **Rear Wing**: 12,00	**Gearbox**: *1st Gear*: 11,80 *2nd Gear*: 9,70 *3rd Gear*: 8,30 *4th Gear*: 7,30 *5th Gear*: 6,50 *6th Gear*: 5,80

Right Front Tire	*Pressure*: 36 psi	*Camber*: -2,10	*Shock*: 90%	*Compound*: soft
Right Rear Tire	*Pressure*: 34 psi	*Camber*: -1,20	*Shock*: 75%	*Compound*: soft
Left Rear Tire	*Pressure*: 35 psi	*Camber*: -0,90	*Shock*: 65%	*Compound*: soft
Left Front Tire	*Pressure*: 35 psi	*Camber*: -1,70	*Shock*: 100%	*Compound*: soft

Laguna Seca driving tips

The s/f straight is slightly bent, but is taken flat out in 6th. You'll brake when you reach the advertising on the right hand wall. I always cut the hairpin into two corners. The first corner is the first third of the hairpin. When I start braking, I aim for the inside apex of that first third, and allow the car to overshoot the usual turn-in point. The momentum carries the car to the outside lane while the speed decreases and while I gradually steer left more and more. I always try to keep the tires from squealing as much as I can.

Then, when I have reduced speed sufficiently to be able to turn, I pull left and enter the second split-corner of T1, which is the remaining section of T1. Again, I aim for ist inside apex, accelerating as much as possible without spinning the rear wheels or inducing excessive understeer. You'll leave that turn when the laptime counter says 9 seconds.

Move over to the left to get the car in the correct position for entering T2. T2 requires that you touch the inside _early_. The actual apex of T2 is not halfway through that turn - or at least not what your eyes tell you is halfway when you sit inside the car - but way before that point. You'll take T2 in second gear, probably, at perhaps 110mph. Try to stay off the throttle, and be careful when accelerating again, because in T2 it is easy to lose the rear end of the car or to overshoot the left hand curb with the front wheels - both can be fatal to your car or laptime, respectively.

T3 again is approached on the left hand side, and this corner is taken classical style. No problem here. Do not try to push the car. Allow it to coast into that corner, and then be back on the throttle early as soon as you've pointed the nose into the right direction.

Accelerate into 6th as you approach T4. T4 should be taken at speeds around 100mph. Brake early, and steer left early, while staying off the throttle. Try to touch the left hand white line slighty before you reach the inside apex of T4. You momentum will carry you back over to the right hand side anyway. Accelerate as soon as possible, of course as you approach T5.

For T5, you don't need to brake, although a slight touching of the brake might not do any harm. Coast through T5 in 5th gear, without braking or accelerating. Try to find a line which may even slightly tough the grass at the inside apex. Don't change the steering angle while you'r in that turn, let the car coast through that turn on the line determined _before_ you actually enter the turn.

Uphill goes the car, 4th, 5th, 6th, and then rapidly down into first as you approach the slow downhill S section.

While braking, aim for a point at the left hand side white line at the very entry of T6. As your speed approaches 40mph, gradually release the brakes and turn the wheel. Try to shortcut the wheel and avoid excessive steering, because that will make you spin. Be careful on the throttle when moving down the hill - the car's rear is very much alive in this section .

T7 is taken classical style, but be aware that the tarmac is not as wide as it seems - you're prone to slip into the grass if you even slightly overdo it here. As you approach T8, brake hard on the left hand side, but if you practice enough, you'll make it through T8 in 3rd or even 4th without a problem. Allow the car to drift over to the left, just try to keep it steady.

T9, the final turn, takes you back into the s/f straight. Nothing special about this one. Try to take it easy on the gas when entering that corner.

6. Long Beach

Long Beach - beach, girls, icecream - naw... racetrack, that's what we think of in the first place, don't we? Sure we do. A road track, during most of the just plain average city roads, but in April in becomes a very special Indycar racetrack. And a short one as well, top laptimes being in the 51s range.

The palm trees and the sky alway tell the driver that he is driving under a southern sun, and temperatures therefore might be a bit of a problem. On the other hand, April is still early in the year, and is a time where temperatures are still relatively moderate at the Long Beach racetrack.

The track has two long straights and several tight corners, which require the car setup to cover quite contradictory requirements. On one hand, you want to be fast on the straights, because on long straights, you can really lose _a_lot_ of time if you don't reach max speed.

OTOH, the LB track is slippery as no other in some places, so you'll need good downforce _and_ a very diligent foot on both throttle and brake.

Since you have to use low wing settings, you'll need to brake into corners very carefully, and since those corners partly are very slow, you'll also have to be careful on the throttle, since you don't get much downforce at low speeds.

I'd suggest, you use higher front wing settings than rear wing settings. A higher front wing value allows you to carry a lot of speed fromt he straoghts into the corners, and to brake late, gradually reducing braking power only as far as halfway through some of the corners. Plus, the front wing doesn't cost you as much top speed as the rear wing does.

Use a lower rear wing to get max speed on the straights. When braking into corners, the rear wing - in ICR2 - isn't of much use. Also, while you're in the corner, your rear isn't very likely to break lose, unless you're careless with the throttle.

OTOH, when accelerating out of corners, higher rear wing settings _may_ help you maintain traction of the rear wheels, thus accelerating faster. So, as always, you need to compromise.

Anti-Roll bars should be fairly stiff, because you'll need the car to follow precisely you steering input I'd set them equal at front and rear for hotlapping and qualifying, but I#d set them to softer values during a race, because during a race, due to more weight and tire wear at the rear over the time, you'll get a more understeering car.

Brake bias should be on the front side, since the front wing setting is higher than the rear wing setting.

I'd set all shocks to 100% because you'll need the car to follow your steering input quickly, you'll need high cornering speeds and you'll want to be able to quickly catch the car if you've gotten into a slide

However, you get fairly uneven tire temps at LB, so try to counter-balance that effect by using different tire pressures. The RF tire will remain fairly cold, so use low pressures here. The pressure distribution given below follows the tire temp pattern you'll get during qualification. Dont't forget to adjust camber.

Steering lock depends on your personal preference, but since LB is one of the more slippery tracks, you'll only want the minimum possible lock which still allows you to get around the track without having to power slide around the narrow corners.

Long Beach setup

Fuel: 6,0 **Steering Lock**: 16 **Front Anti-Roll Bar**: 7 **Rear Anti-Roll Bar**: 7 **Stagger**: 0,000 **Brake Bias**: 6 **Front Wing**: 16,00 **Rear Wing**: 11,00	**Gearbox**: *1st Gear*: 11,90 *2nd Gear*: 9,80 *3rd Gear*: 8,20 4*th Gear*: 7,00 *5th Gear*: 6,10 *6th Gear*: 5,40

Right Front Tire	*Pressure*: 32 psi	*Camber*: -2,00	*Shock*: 100%	*Compound*: soft
Right Rear Tire	*Pressure*: 33 psi	*Camber*: -1,20	*Shock*: 100%	*Compound*: soft
Left Rear Tire	*Pressure*: 36 psi	*Camber*: -1,50	*Shock*: 100%	*Compound*: soft
Left Front Tire	*Pressure*: 34 psi	*Camber*: -2,10	*Shock*: 100%	*Compound*: soft

Long Beach driving tips

Ok, the car all set up, do your warm-up lap. I'll meet you at the s/f line. Try to be on the right hand side, near the wall, approximately 50 yards or meters after the s/f line. That's the point from where we'll start our lap.

Ok, here we are. Remember that the passenger seat does have no seat belts - drive carefully!

You are in 6th, at somewhere in the high 180's or low 190's. Drift over to the left as the car will do so naturally. Don't force the car, since you'll want to get max speed here, and any extraneous steering input will slow you down unnecessarily.

You are now at the left hand wall. Brake just before or at the point where the advertising on the left hand wall starts. Stay on the left for a moment, then pull over to the right, aiming for a point slightly _this_ side of the apex of T1. Your speed and the slightly skidding front wheels will carry you to the right point as you brake into T1 and gradually release the brakes, so as to aim the car at exactly the right point near the wall and _on_ the inside apex of T1. Use your ears in order to determine the optimal braking power. Just allow them to squeal slightly, not more. That'll give you the best compromise between steering capability and deceleration. Remember, you'll steer with both steering _and_ brakes.

Once you're at the apex or just before it, release the brakes - you should have gradually released them anyway on your way up to this point - and get back on the throttle _if_ the car is stable and pointed at the inside apex of T2 or at a point somewhere to the right and before that apex.

Accelerate as much as you can without losing the line or making the car unstable. If you can't do that, don't accelerate at all, just maintain that speed. The acceleration period is short anyway. The speed through T1 is in the low 60s, then maybe you'd accelerate into the high 80's, only to brake for T2 again.

T2 is a classical turn. It is essential that you drive through there without sliding. Don't get back on the throttle early. Wait until you are safe and sound behind the apex _and_ the car is pointed to a point which allows you to accelerate safely without hitting the wall and without spinning your rear wheels or sliding your front wheels.

Only then, get back on the throttle _gradually_. You may now aim to move over to the left hand side, but that is not essential. It is far more important to keep the car steady, to accelerate hard and to brake in time for T3. I usually ended up in the center of the track, accelerating into 4th, then braking hard into T3, aiming for a point _very_ close to the inside apex at the right hand wall, allowing to car to tighten it's radius by gradually releasing the brakes.

After having passed the apex, the car would drift over to the left rapidly, pushed even harder by me putting the pedal to the metal - but avoiding rear wheel spin if possible. Again, it is essential to keep the car steady now, because T4 is extremely important. You blow it here, you'll have blown the entire straight, which means you'll have spoiled one third of the entire track. You need to drive through T4 exactly right in order to take max speed out of it into the straight. This can easily win or lose you as much as a second or more.

Enter T4 from the left hand wall. Your cornering speed through T4 can end up between the high 70's and the low 90's, depending on the line you drive. So you see it how important T4 is. These 20mph can be carried along though almost all of the following straight.

Brake early in order to prepare yourself for T4. Don't touch the throttle until you are past the apex, then wait a split second to allow the rear to stabilize, and _then_ get back on the throttle gradually. Make sure you don't spin the rear around, that's easily done at this point of the track. Allow the car to drift over to the left, acceleratin hard as soon as you safely can do so. As soon as the wall recedes, try to follow it somewhat, but allow the car to drift over to the right again, skimming the apex of the exit of that S-corner. At the bridge, you should be shifting into 6th and your laptime counter should be int the 27s range or rather jump to it from 26 just after you shifted.

Flat out to T7. Brake at the point where the center marks on the road start. Brake hard, and smoothly pull over to the right to touch the inside target of T7, thereby gradually releasing brakes as you slow down to 95mph. That's your speed at the apex of T7.

Smoothly acelerate again, drifting over to the left and back over to the right or to the center of the track, wichever you like, it's not essential. The next essential point is the entry into T8. This time, I'll simply say: follow the skidmarks. The actually show you the optimal line this time.

But then, when you're through T8, and heading for T9, accelerate hard and let your speed carry you into a turn which differes somewhat from the corner the road tries to provide you with.

You speed will carry you a little wide at first, and that is ok. As the car gradually decreases its speed, steer more into T9, until you have the car pointed back to a point near the right hand wall. However, as soon as you safely can do so, accelerate again - don't spin the rear wheels!! - and allow the car to drift over to the left as far as it wants to. It is more important to not hamper acceleration in any way than to stay on the right hand side of the track.

Well, now accelerate hard and try to reach the point where we started this lap from. You just completed a lap in the 52s range - oh, you were faster? Then you're a better driver than I am.

7. Michigan

Welcome to the Michigan track - a huge oval, where max speed seems to be eveything. Speed ranges between 225 to 245 at Michigan. This is - except for Taladega - probably the fastest track for ICR2.

You _do_not_brake_ at Michigan. Never!

However, speed isn't everything. One would think that simply driving as fast as possible will allow you to win the race - but that's not the case.

Actually, what makes these huge ovals so tricky, is the fact that they require extremely precise driving. Every little twitch in your line, every little slide of a wheel, going off or on the throttle just a few yards off the hot spots will cost you the critical split seconds which make the difference between pole and mid-of-the pack.

Hotlap speeds at Michigan are in the low to mid 240's. This means that you'd actually have to drive 260 mph for each time you drop to 225, which happens at least twice during a lap at Michigan - but even with the wings set to 3, the lowest possible position, the car won't drive that fast. So how do we get those dream-speeds?

Well, a little quirk in the calculation of laptimes (it's not an ICR2-quirk - the same method of calculation is used in the real world as well) helps us. Actually, the lapspeeds are calculated as a function of laptime and average track length - which is usually measured in the center of the track. Now, if you drive a shorter line - at Michigan this is to the left of the center, or lower in the corners - you'll need to drive only a slightly shorter distance. ICR2 calculates your lapspeed from the ratio between laptime and length of the center line of the track. Of course, as compared to the center line, you're considerably faster now, since you didn't drive allthe distance, actually.

As for the setup - the first and most important rule is to use low steering lock values. High values make the car respond violently at those high speeds. I use a value of 9; wheel users may want to use higher values.

As for the shocks, you might want to use 100% except for on the RF wheel. However, you might also use a RF/RR/LR/LF setting of 60/80/90/100. The latter one is a bit more forgiving and will let the car turn more willingly, whereas the former one is optimized for cornering speed. Both should be equally fast, though.

If you use the former setting, be aware that intheory stiffening the RF shock to 100 also will improve grip at that wheel, but due to the improved grip at that tire, the car will tend to oversteer more and will be a bit more difficult to control.

Usually, on high speed ovals, you use high tire pressures, because that usually makes the car faster. Not so at Michigan, however. Although Michigan is a high speed oval, it requires lower pressures, because you need good grip in those turns. I suggest values in the range 36-38 on all four wheels, and preferrably 36. That'll be fast enough on the straights, and yet give you control in the corners.

Use soft tires for LF/LR/RR, and a medium tire for RF for qualifying. For the race, you have to check for yourself. Depending on the environment temps during your race, you'll have to use harder

compounds, but I can't tell you that. Usually, a 10 degree difference in environment temp will already have a significant effect on tire temps and speeds.

Soft tires have their best grip in the range of 220 to 235 degrees. Medium tires will have their best grip 10 to 15 degrees above that. If your tire temps are in the 255-265 range, consider using hard compounds on that tire.

Use wings in the low 3 degree range. You have to determine for yourself what suits you best. You have to achieve a balance between speed and control in the corners. You may find it surprising, but you'll be faster if you add a little wing as needed, because that allows you to optimize cornering speed. I use wing settings of F/R 3.20/3.00. Others prefer 3.45/3.10, and are even faster with that than I am.

It is important that you are able to maintain high speeds through the corners. Therefore, you need to be able to control the car and convert that engine power into speed even in the corners. Also, you have to be able to drive a clean line, and to prevent the rear of the car from sliding. The rear wheels must not spin or slide in corners. We'll talk about the driving line later.

Adjust camber as needed. Set the gears so that 6th gear maxxes out two or three seconds before you have to get off the throttle and the entry of the corners. For Cosworth engines, max is 13000. For Honda and Mercedes it's 13500. Another two or three seconds will not blow the engine, but keep in within the max power range.

Then set 5th and 4th only 10 smaller than 6th. Set gears 3rd to 1st at regular intervals below this. First gear should not be shorter than 9.50, since you don't need to start from standstill except when pitting. At the race start, a long first gear will even make you faster than the CCs, because it'll keep revvs in a high power range and allow you to use all six gears, thus keeping revvs in an optimium range all the time.

I use a little more a-r-bar on the front, like position 3, and zero at the rear end. Brake balance should be around position 6.

And add full stagger. That'll make the car turn more willingly. However, it'll also make it slide more easily. There's a tradeoff with most good things in life. Just be careful in corner with the throttle. Reducing the throttle just slightly in a corner will sometimes make the car much easier to control,and will allow you to maintain grip and go through corners much faster.

The Nascar drivers among you may want to add some cross weight. I never use that in Indycars, and anyway not at high speed ovals, but if you want to do it, all you have to do is simultaneously stiffen or soften the RF/LR shocks. That has the same effect.

Michigan setup

Fuel: 4,0 **Steering Lock**: 9 **Front Anti-Roll Bar**: 3 **Rear Anti-Roll Bar**: 0 **Stagger**: 1,000 **Brake Bias**: 6 **Front Wing**: 3,20 **Rear Wing**: 3,00	**Gearbox**: *1st Gear*: 9,50 *2nd Gear*: 7,50 *3rd Gear*: 6,00 *4th Gear*: 4,50 *5th Gear*: 4,40 *6th Gear*: 4,30

Right Front Tire	*Pressure*: 36 psi	*Camber*: -1,90	*Shock*: 75%	*Compound*: medium
Right Rear Tire	*Pressure*: 36 psi	*Camber*: -1,30	*Shock*: 100%	*Compound*: soft
Left Rear Tire	*Pressure*: 36 psi	*Camber*: -0,10	*Shock*: 100%	*Compound*: soft
Left Front Tire	*Pressure*: 36 psi	*Camber*: -0,70	*Shock*: 100%	*Compound*: soft

Michigan driving tips

Put in 4 gallons. Reduce boost to zero, and do one warmup lap. After having crossed the s/f line the first time, crank boost up to max.

The fastest line is where the skidmarks are. So, follow these marks, if you can. Get off the throttle if you have to do so in order to be able to follow the skidmarks.

When you cross the s/f line for your fast lap, your speed should be 240 or 241. You are at the extreme right. Stay there until you swing over to the left to cross the skidmarks painted in T1. You start high through T1 and stay on the throttle. Actually, you may even be a little to the right of the skidmarks at first. Through T1 you approach the skidmarks and then cling to them.

After a while - probably just before you leave T1, you'll notice that the rear end starts feeling lose. Get off the throttle slightly - just slightly - and bring the car down. Between T1 and T2 you should be on the skidmarks, then through T2 you should drift down to the extreme left gradually. Two thirds through T2 you should be even to the left of the white line with a wheel or two. Your speed here should be between 225 and 227 - if you have more wing, it might be 229 as well.

This is the point where you start accelerating flat out - unless you can tell that you'll hit the wall. It is absolutely critical that there is no tire squeal, and no sliding or wheelspin at all. The rear straight is flat out.

When approaching T3, you're on the extreme right. Your line through T3 is below the skidmarks. Try to ease down the car to the white line at the apex of T3. To be really fast through T3/T$, you'll

have to get off the throttle slightly now,and maintain that throttle position for two or three seconds. Try to stay left, but do not allow your tires to squeal.

You'll drift over to the right. Control you car with the throttle, not with the steering wheel. In order to use the road to the max, you have to accelerate as much as possible, just avoiding to hit the wall. As soon as you have gotten closest to the wall,tryto come down to the left again as far as possible, in order to shortcut some of the long, bent straight. However, avoid any tire squeal at the front or rear tires, because that'll slow you down.

Well, that's it. As compared to road tracks, it sounds very easy. The problem with ovals is that although they give you little to do and plenty of time to think, they require you to drive so absolutely flawlessly. Only if you don't make the slightest mistake you'll be fast.

As for the CCs, they'll be easier to handle than on road tracks, but they still have some surprises for us.

Depending on whether they are much slower than you or only a little, you'll have to decide whether you can pass them "on the fly" or whether you'll have to prepare yourself for it.

Passing is always good into and out of turns if you are only marginally slower than the CCs.

However, be careful out of T4, because if you leave that turn on a low line, you have to be aware of the fact that the CCs will cut down from their high line and show no mercy on the unsuspecting sim racer. Be sure to get away from then before they reach you, because they really mean business there.

8. Mid Ohio

The Mid-Ohio Sports car course - what a name. Doesn't that sound like old english sports cars, like gentlemen hunting for records in noble tournaments?

The Mid-Ohio sports car course is a fairly fast and long track, as one fast lap lasts just under 70 seconds. Most of the corners are medium speed corners which give you sufficient time for preparing your cornering strategy. The track is a bit narrow in some places, and it has a couple of uphill and downhill sections - one of these being a tricky corner into which Papy has wonderfully modelled the effect of a car's rear end braking loose when riding too fast across the top of the hill.

There are few walls on that track, but lots of slippery grass. There's a tradeoff for everything in life.

Some of the corners are slippery, and some of them are a bit difficult to appraise. Sometimes, due to the limitations of today's computer systems, the proportions may look a bit incorrect in certain places - like the apex of a corner not being exactly where you'd think it is - although from an overhead view, you'll see that it's there all right - or like sometimes the grass apparently jumping at you when you thought there was still plenty of track left. Not Papy's fault - they did a good job. Yet, you'll have to find out whether you still are on the track or not, sometimes. Watching replay in overhead view helps a lot with this.

Anyway, we all should watch the replays uploaded to CIS or to Internet sites more frequently; that is where you really can see interesting fast lines and get new ideas on how to improve your own lines and driving.

As opposed to what others say, I also believe that the replay clearly shows where I shift gears and where I steer and how much. So, the overhead view and the in-car view should provide you a most detailed overview of your competitor's driving style.

Lets get back to the track.

First, we want to prepare our pretty new car for the Midohio track. Let's get a decent setup.

Mid Ohio setup

Fuel: 5,0 **Steering Lock**: 15 **Front Anti-Roll Bar**: 4 **Rear Anti-Roll Bar**: 1 **Stagger**: 0,000 **Brake Bias**: 6 **Front Wing**: 13,80 **Rear Wing**: 13,20	**Gearbox**: *1st Gear*: 11,90 *2nd Gear*: 9,60 *3rd Gear*: 8,20 *4th Gear*: 7,00 *5th Gear*: 6,10 *6th Gear*: 5,40

Right Front Tire	*Pressure*: 36 psi	*Camber*: -1,90	*Shock*: 70%	*Compound*: soft
Right Rear Tire	*Pressure*: 36 psi	*Camber*: -1,00	*Shock*: 40%	*Compound*: soft
Left Rear Tire	*Pressure*: 36 psi	*Camber*: -0,90	*Shock*: 30%	*Compound*: soft
Left Front Tire	*Pressure*: 36 psi	*Camber*: -2,00	*Shock*: 50%	*Compound*: soft

Ok. Fuel - 5 gallons. We don't want to go far, but fast. Ant-Roll bars - front 4, rear 1. You'll need some precision of steering when going into corners at Midohio, but because of the fact that the corners mostly are at the end of long, straight sections and don't come in quick succession, you won't have to quickly throw the car from left to right. This allows us to get some additional grip from not adjusting the front a-r bar to a stiff setting.

The rear is a bit crucial at Midohio, since it will quite often break lose - in particular in those up- and downhill section. So, we need maximum grip and set the rear bar to 1. Setting the rear bar to a lower value than the front bar will also give the car an understeering characteristic, which is much wanted at Midohio, due to the above mentioned circumstances.

You'll need pretty much high-speed at Midohio, so use little wing. 13.8F / 13.2R is a good proportion. It'll not distort the cars balance in any way, but will only slightly enhance grip in the front section.

As for the tire pressure, at Midohio you need both speed and grip. So, 36 psi is a decent compromise. If your tire temps are too low with this setting, you could lower the pressure to maybe 35, and if they are too high, do the contrary.

As for the shocks - since at Midohio we didn't use the tires to make up for different distribution of load across the four wheels, we'll use the shocks.

If we set them all to 100%, we'll see that the tire temps differ considerably from tire to tire. So, we want to diminish the load of the hotter wheels, and put a little more load in the cooler ones. In order to achieve this, we reduce the stiffness of the shocks on those tires which are hotter. 70/40/30/50 RF/RR/LR/LF is a suitable combination.

Of course we could start off with setting the RF tire to 100, and increase the other shocks accordingly, but on a track like Midohio, with it's long and winding corners, we want maximum tire grip. We will not have many problems with the car wobbling too much, or with the car losing grip due to quick directional changes. We'll more or less smoothly rock and roll the car along that track. So, we don't need stiff shocks, which would provide us with a very stable car which responds quickly and induces little wobble of it's own, but we need shocks which give us maxium downforce optimally distributed across all four wheels.

On the other hand, setting all shocks to zero would mean going a bit too far - hence the aforementioned settings.

Brake bias this time needs to be slightly more on the rear than in my other setups, because of the wing settings I use.

I set the gears in such a way as to have maxium power and a decent speed bandwidth in the places where I need them. You'll probably want to change them up or down a little, but in general you should be quite satisfied with those parameters.

Mid Ohio driving tips

Okey dokey - let's hit the road.

As always, please do that introductory lap on your own. Don't wreck the car, you know that daddy worked hard for the money, and meet me at the s/f line.

Whooops - that was quite a jump into the car at 12.000 revvs in fifths gear - I should try to make it to the Olympics with that one. Pooh. Alright. You're in 5th, revving 13,000. BRAKE!!!!

Brake and turn left. At Midohio, you'll notice more often than on other tracks that you have to brake into a corner, starting with a full braking attack, but gradually reducing braking force as you turn more and more into the corner. Same thing here.

Aim for the apex of T1. Of course, you won't find it. I suggest you watch the replay later and see where you went, then correct that, watch another replay, and so on, until you know what it looks like from within the car to hit the apex of T1.

You gotta be off the throttle entirely until I tell you otherwise, ok? Ok. Shortly before you hit the apex, stop braking. You got the right speed by now, even if your eyes say "too slow" and your sponsor shivers - he paid half of the car, remember? Glide through T1. After you hit the apex, WAIT!! until you are almost back over on the right hand side. Then, g r a d u a l l y reapply throttle. Not full, but a little. Only stomp on the throttle if you're sure you won't hit the green, because hitting the green at this speed is mostly fatal to your laptime, or more .

Go flat out now. You should be back in 4th when the clock strikes 6 (seconds). Slowly meander over to the left and approach T2. Brake before the final marker, maybe 20 to 30 meters before that marker. Brake full as long as you can. I never try to reach the inside apex of that turn. I brake full and continue straight on. My target is to have reduced speed sufficiently to just not overshoot that corner, but I usually allow the car to drift to the very edge of the corner. Then - oh well, yes,

somewhere before that, but not much - I release the brake pretty much and steer pretty hard to the right, that way so to say abbreviating the corner from a long and wide one to a short and narrow one. This allows me to be back on the throttle very soon.

Accelerate full while allowing the car to drift to the left hand side of the track at the exit of T2. You should be back in 6th way before the counter says 23 seconds.

Whew. This is going to get me a heart attack. Ok. On the following straight we'll cool down and prepare ourselves for T3.

We brake shortly before the final marker. We brake into that corner, which means we brake hard, then let up gradually as we move over to the right to hit the apex of T3.

Once we're past the apex, we're in first and accelerate full. We'll already aim for the apex of the left turn on top of the hill, although we can't see it yet. This is the secret to taking T4. You'll have to aim for it's apex way before you even know it's there. If you do it right, you can brake until you are just before the apex, release the brakes and coast through T4, accelerating again drifting over to the right.

Make that one long move - over to the right and then back to the left, preparing for T5. You are now in 2nd, revving very high, or you have shifted to 3rd and are still in revving low.

You are also on the left hand side of the track. Brake hard, and aim for the apex of T5. Try to hit that corner slightly _before_ the apex, and then reapply throttle gradually soon. Try to cut through the following Esses in such a way as to hit T6 early, before it's apex, then move on to T7, do the same, and allow the car to naturally drift over to the left again. You are now in 4th gear, preparing for T8.

Once again, T8 is taken _early_! Brake down into first and, while gradually releasing the brakes, enter the turn. Hit the inside _before_ the visual apex, and carefully get back on the throttle, as the left hand wall is a hazard.

You should shift one gear up each time before the corresponding second switches. In T8, your counter says 48 or 49. You should shift in 2nd when the clock switches to 51, into 3rd when the clock jumps to 52 etc. Or, even a little earlier, if you want to beat my or Doug Arnaos time .

You'll accelerate into 5th. Enter T9 from the right, and brake into that corner as well. At the apex you should be in 2nd gear, coasting through T9 with no braking or throttle at all. Then, accelerate hard again.

T10 is a tricky one. It is a close turn, but we'll play the same trick as we did in T2.

Accelerate into 3rd. When you're at or just before the final marker, brake hard and pull over to the right. Try to find your own line through that corner, or watch my replay in jt_ohio.zip.

Again, you'll change that turn into a pointed one from a smooth one. As you get back on the throttle, watch the counter. It should say 1:04 or 1:05. It doesn't? Well, no guarantees given this side of the pond

9. Milwaukee

Hi there,

Wayne asked me to create sort of a track guide for all you ICR2 aces out there. Well, he couldn't have picked a better candidate: my english is poor, I don't know write from left, and I'm notorious for farting in the drivers lounge. Whaddayasay?

So, here's a plain vanilla road map for all you newcomers out there (yes, Wayne, you too <sg> [sardonic grin, I know this is new]).

Fasten your seat belts. Put on your helmets. I'll take you on a tour around the track, I'll tell you where to pass and where not to, where to hit the throttle and where to take it easy.

First of all, on ovals more than on road tracks, you'll need different setups for qualifying and race. At Milwaukee, you'll need a reliable setup for the race, and a fast one during qualifying. A fairly stable race setup should allow speeds in the 186's with 10 gallons of fuel on board. A good qualifying setup should allow speeds of up to 189 at 50 deg with 3 gallons on board.

I recommend you set all shocks to 100%, the rear wing to 6 and the front wing to 15 for qualifying, with three soft tires and RF=M. I did a 188.762 with that setup without much practicing. For the race, use soft tires on the left hand side and RF=H, RR=M. Tire pressures should be 33/33 on the left hand side, and 36/36 on the right hand side. Set stagger to 1000. Don't forget to adjust camber accordingly. I use a wheel lock setting of 6 degrees, but I use a joystick. Wheel owners will want to increase that. For the race, set the wings to 15/7. That should be a sufficiently forgiving setup which allows you to survive minor collisions with CCs.

Set your 6th gear so that it will max out at just over 13,000 at the end of the straights, and set 5th, 4th and 3rd at small intervals. In the turns, you should need to switch down to 4th.

Milwaukee setup

Fuel: 3,0 **Steering Lock**: 14 **Front Anti-Roll Bar**: 4 **Rear Anti-Roll Bar**: 4 **Stagger**: 1,000 **Brake Bias**: 3 **Front Wing**: 15,00 **Rear Wing**: 6,00	**Gearbox**: *1st Gear*: 10,00 *2nd Gear*: 8,00 *3rd Gear*: 6,60 *4th Gear*: 6,00 *5th Gear*: 5,70 *6th Gear*: 5,40

Right Front Tire	*Pressure*: 36 psi	*Camber*: -1,90	*Shock*: 100%	*Compound*: medium
Right Rear Tire	*Pressure*: 36 psi	*Camber*: -1,30	*Shock*: 100%	*Compound*: soft
Left Rear Tire	*Pressure*: 33 psi	*Camber*: -0,10	*Shock*: 100%	*Compound*: soft
Left Front Tire	*Pressure*: 33 psi	*Camber*: -0,60	*Shock*: 100%	*Compound*: soft

Milwaukee driving tips

For qualifying, tire temps are not that much of an issue, but try not to exceed 160mph during the warm-up laps before the green flies, in order to avoid overheating the tires before the actual fast laps come.

The Milwaukee track has two critical points, which are right behind the entry points of T1 and T3. At both points it is easy to lose the rear with a fast setup, since a fast setup needs to have a lose rear which allows it to sort of drift somewhat through the turns in order to allow for racing lines more on the inside of the turns (that way keeping lap distances short). It is important to be almost or completely off the throttle at these points with a Q-setup, and to apply as little steering as possible.

During Q, on the warm-up lap before the green flies, don't enter T3 at max speed, and try to find a smooth line through T3/T4. Don't over-accelerate, as correcting the wobble resulting from this will cost you speed on the front straight. Consider using a wide line entering T3 and aim for the inside white line at the point between T3/T4, gradually add throttle at that point and let the car drift to the outside wall at full throttle, eventually. You should be in fifths at the exit of T4 and shift to 6th shortly after being back on the s/f straight. Try not to steer or slide too much, because that will cost you speed.

Stay somewhere on the right hand side of the track. The green falls. If you want to brake for T1, do so before you reach that critical point or even before you start steering. Braking isn't a bad policy, if it helps you find a better line through T1/T2, since that in turn may help you get better exit speeds

from T2. Turns need high speeds all the way, but if you can't achieve that, aim for high exit speeds if the turn is followed by a long straight.

I don't usually brake at Milwaukee, except in a race where you have to try to avoid the CCs.

My suggestion is, when entering T1, release the throttle completely. Through T1, gently cut across the skidmarks and aim at the yellow line at the tangent between T1 and T2. Still no throttle needed. Once you've reached that point, continue to target the cars nose at the white inside line. Use steering to the the extent possible without getting much squealing from the tires, and use throttle to counteract the steering if the car approaches the white line too quickly. Gently reapply throttle as soon as you're sure that you'll be able to touch the white line. Stay on the inside until the tires start squealing just noticeably, and then carefully play with throttle and steering to let the car drift to the outside again into the back straight.

If you hit the yellow or white line too early, you'll be off line for exiting from T2. If you don't hit it at all, you are giving away precious meters of track by driving a wider (longer) line than you have to. You may try to find a line closer to the yellow in T1, touching the grass at the tangent between T1/T2, but on that line it's easy to miss the proper entry into T2, and you'll have to induce some power slide in order to bring the car into the correct position for accelerating early through T2. That's somehow like abusing a beautful woman for cleaning the kitchen.

In T3, you'll have the same problem with the rear as in T1. The remedy also is identical. Enter the turn from somewhere on the right hand side and gently cut across the skidmarks. Cross the yellow line at the tangent between T3 and T4, and continue towards the white line. At that point, reapply throttle and let the car drift back onto the s/f straight. Again, balance throttle and steering input to keep the tires only squealing slightly or not at all.

On ovals it is critical to keep distances short, i.e. to stay on the inside of turns, but it is even more important not to crash. So, even if the car wants to move somewhere you don't want it to move to, let go instead of forcing it; don't overcorrect. Try to persuade the car into following your commands instead of using brute force. There's plenty of room in those turns at Milwaukee.

At Milwaukee, except for those two critical points, with a good race setup, the car handles quite reliably. This may be less so if you don't use pedals for gas/brake, of course.

As for passing the AIs, there are two ways to do that. Either you turn damage off and kick some butts, or you learn how to control your temper. The AI are pretty stupid and slow at Milwaukee, but they make all kinds of odd moves. I suggest you try to pass them at the exit of T2 and T4. Alternatively, you can pass them on the outside through all turns if you have a reliable setup. When you are behind a CC in one of the turns, be careful. They might slow down all of a sudden when there is no need to. When passing them on the straight, expect them to cut across the track relentlessly, no matter whether it is of any use and no matter whether you have the right of way or not. They like to do that in particular shortly after leaving T2 and shortly before entering T3. On the front straight, some are going to use odd lines, but be patient. They are not really fast at Milwaukee and you will be able to pass them eventually.

Don't make the same mistake I made at Michigan: don't pit much earlier than the Ccs, because in that case you'll lose lots of laps lead to someone who's smarter than you.

10. Nazareth

Nazareth - the oval in ICR2 I don't like at all.

Nazareth has four straights - unusual for an oval. At Nazareth, good hotlap artists lap at average speeds of 192 mph, some even faster.

The track is made up of 5 corners, linked by three straights.

What do we need for a good setup? Well, mainly speed, but since those corners are rather tricky, we'll also need grip.

Therefore, we'll use a good measure of front wing, giving us the possibility to drive a clean, close line in corners, but little rear wing, a necessary requirement for high speeds on straights.

I set the fron a-r bar to a high value, because I wanted precise steering control, in particular in T1, and I could live with some oversteering tendency, since my pretty effective front wing would cancel that out.

Stagger is 1,000 - I wanted to get as much left-turning bias as possible.

The setup below is for hotlaps. For the race, use harder compounds on the outside tires. The shock settings are designed to provide for fairly equal load distribution across all four tires - the RF wheel getting most of the load, followed by the RR wheel.

The tire pressure seems to be upside down. It actually is, but it's fast at Nazareth - don't ask me why. On all other tracks, the tires on the inner side would have to have lower values than those on the outer side.

Don't forget to adjust camber, since that parameter is vital on ovals. Camber can get you that minuscule advantage of having slightly more grip than your competitor - and on ovals this is crucial. Set the gear in such a way as to always have the optimal revv available at _race_ speeds - you never start from standstill. Even the start is a flying one, so you don't need your first gear to support the range from 9 to 80mph. Instead, make sure you have the optimal revv range at race speeds.

Nazareth setup

Fuel: 3,0 **Steering Lock**: 6 **Front Anti-Roll Bar**: 7 **Rear Anti-Roll Bar**: 6 **Stagger**: 1,000 **Brake Bias**: 4 **Front Wing**: 15,80 **Rear Wing**: 7,40	**Gearbox**: *1st Gear*: 9,70 *2nd Gear*: 7,80 *3rd Gear*: 6,60 *4th Gear*: 5,80 *5th Gear*: 5,40 *6th Gear*: 5,10

Right Front Tire	*Pressure*: 36 psi	*Camber*: -1,80	*Shock*: 60%	*Compound*: soft
Right Rear Tire	*Pressure*: 37 psi	*Camber*: -1,30	*Shock*: 80%	*Compound*: soft
Left Rear Tire	*Pressure*: 37 psi	*Camber*: -0,20	*Shock*: 90%	*Compound*: soft
Left Front Tire	*Pressure*: 41 psi	*Camber*: -0,70	*Shock*: 100%	*Compound*: soft

This setup is a hotlap setup. For the race, add some rear wing, and set the rear a-r bars to a lower value. Also, use medium or even hard tires for the right hand tires, depending on the envirnoment temperature.

Nazareth driving tips

As for driving around Nazareth - the problem is keeping the rear under control. There are two critical points, which are just before the entry of T2, and just after the entry of T4. You could counteract this partially with excessive amounts of rear wing, but that would slow you down excessively as well. So, you'll have to modify your driving.

When approaching T2, start from the right hand side. Aim you car for a point on the left of the track some distance into that corner, and release the throttle. Don't brake. If you are careful on the throttle, you should be able to make it through that corner, from an entry speed of somewhere in the high 160's to an exit speed of around 180mph.

If you're not able to maintain a tight line, don't bother. Allow the car to drift to the center or to the right of the track. No problem. Any extraneous steering input would send your rear into the wall now. So be careful. After you leave T2, the car will be much more stable. Try to leave T3 on the left hand side or in the center of the track. If you don't make it, it doesn't matter, as long as you don't crash.

Accelerate flat out through T3, and follow the skidmarks.

Approach T4 on the right hand side, but - as with T1, you have to aim for the entry point of T4 on the extreme left hand side, _at_ the white line. You have to align the car with that point before actually entering the turn. There is no need to brake, although I'd recomment you brake until you really know this entry by heart.

In T4/T5, it is absolutely essential that you control the car more with the throttle than with the wheel. Any slight steering input may easily send you off into the wall. So, once you've found the cornering radius and the amount you have to turn the wheel for achieving it, you should drive at least through T4 without ever moving the wheel, except for that initial time when you set it right for the desired cornering radius. Only in T5 you may start to steer, as there, the car gradually becomes less susceptible to spinning.

Ok, you're on the right. Get off the throttle, move over to the left and aim for the point described above. Do not steer at first, after having pointed the nose in the right direction. You should almost touch the grass. Just coast through that section. Then, carefully set the wheel to the amount of steering required to coast through that corner without throttle and without further steering input and try to make any corrections required with the throttle rather than with the wheel.

At the changeover from T4 to T5, gradually reapply throttle and accelerate carefully into the s/f straight. Don't force the car to the left, just try to get the fastest exit from T5 possible. Staying left will shortcut some track distance, but steering heavily will slow you down more than you want or will even send you off into the walls.

11. New Hampshire

Welcome to the New Hampshire/Loudon track of ICR2.

As on most ovals more than on road tracks, you'll need different setups for qualifying and race. At Loudon, you'll need a reliable setup for the race, and a fast one during qualifying. A fairly stable race setup should allow speeds in the 186's with 10 gallons of fuel on board. A good qualifying setup should allow speeds of up to 191 at 50 deg with 3 gallons on board.

New Hampshire setup

Fuel: 3,0 **Steering Lock**: 8 **Front Anti-Roll Bar**: 7 **Rear Anti-Roll Bar**: 5 **Stagger**: 1,000 **Brake Bias**: 8 **Front Wing**: 15,00 **Rear Wing**: 8,00	**Gearbox**: *1st Gear*: 9,70 *2nd Gear*: 7,80 *3rd Gear*: 6,60 4*th Gear*: 5,90 *5th Gear*: 5,50 *6th Gear*: 5,20

Right Front Tire	*Pressure*: 35 psi	*Camber*: -2,00	*Shock*: 100%	*Compound*: soft
Right Rear Tire	*Pressure*: 37 psi	*Camber*: -1,30	*Shock*: 80%	*Compound*: soft
Left Rear Tire	*Pressure*: 37 psi	*Camber*: -0,20	*Shock*: 90%	*Compound*: soft
Left Front Tire	*Pressure*: 41 psi	*Camber*: -0,70	*Shock*: 100%	*Compound*: soft

The shock setting is designed to give you equal load distribution on all four corners of the car - wall, as equal as possible.

The rear wing setting of 8 will give you high speed, but will require that you are careful on the throttle and with steering input in corners. Also, this is only good for qualifying. For the race, add some rear and front wing. For Q, set the front wing to 15, with soft tires on all four wheels.

For the race, use soft tires on the left hand side and RF=H, RR=M. Tire pressures are different as well, in order to counter uneven temperature distribution on the tires.

Set stagger to 1000. Don't forget to adjust camber accordingly. I use a wheel lock setting of 6 degrees, but I use a joystick. Wheel owners will want to increase that. For the race, I'd set the wings to 16/9. That should be a sufficiently forgiving setup which allows you to survive minor collisions with Ccs.

In the qualifying setup, counterbalance the oversteering tendency by setting the front a-r bar two notches stiffers than the rear one. In the race setup, use some a-r bar to keep the car from wobbling excessively, but you don't need stiff settings here.

Set your 6th gear so that it will max out at just over 13,000 at the end of the straights, and set 5th, 4th and 3rd at small intervals. In the turns, you should need to switch down to 4th.

For qualifying, tire temps are not that much of an issue, but try not to exceed 160mph during the warm-up laps before the green flies, in order to avoid overheating the tires before the actual fast laps come.

New Hampshire driving tips

The Loudon track has two critical points, which are right behind the entry points of T1 and T3, like the Milwaukee track. At both points it is easy to lose the rear with a fast setup, since a fast setup needs to have a lose rear which allows it to sort of drift somewhat through the turns in order to allow for racing lines more on the inside of the turns (that way keeping lap distances short). It is important to be almost or completely off the throttle at these points with a Q-setup, and to apply as little steering as possible.

During Q, on the warm-up lap before the green flies, don't enter T3 at max speed, and try to find a smooth line through T3/T4. Don't over-accelerate, as correcting the wobble resulting from this will cost you speed on the front straight. Consider using a wide line entering T3 and aim for the inside white line at the point between T3/T4, gradually add throttle at that point and let the car drift to the outside wall at full throttle, eventually. You should be in fifths at the exit of T4 and shift to 6th shortly after being back on the s/f straight. Try not to steer or slide too much, because that will cost you speed.

Stay somewhere on the right hand side of the track. The green falls. If you want to brake for T1, do so before you reach that critical point or even before you start steering. Braking isn't a bad policy, if it helps you find a better line through T1/T2, since that in turn may help you get better exit speeds from T2. Turns need high speeds all the way, but if you can't achieve that, aim for high exit speeds if the turn is followed by a long straight.

I don't usually brake at Loudon, except in a race where you have to try to avoid the CCs.

My suggestion is, when entering T1, release the throttle completely. Through T1, gently cut across the skidmarks and aim at the yellow line at the tangent between T1 and T2. Still no throttle needed. Once you've reached that point, continue to target the cars nose at the white inside line. Use steering to the the extent possible without getting much squealing from the tires, and use throttle to counteract the steering if the car approaches the white line too quickly. Once you notice how the car settles - you can actually see this on screen - reapply throttle, gradually increrasing acceleration back out of that turn. Stay on the inside until the tires start squealing just noticeably, and then carefully play with throttle and steering to let the car drift to the outside again into the back straight.

If you leave the line too early, you'll be off line for exiting from T2. If you run too wide, you are giving away precious meters of track by driving a wider (longer) line than you have to. You may try to find a line closer to the grass in T1, touching the grass at the tangent between T1/T2, but on that

line it's easy to miss the proper entry into T2, and you'll have to induce some power slide in order to bring the car into the correct position for accelerating early through T2.

In T3, you'll have the same problem with the rear as in T1. The remedy also is identical. Enter the turn from somewhere on the right hand side and gently cut across the skidmarks.Try to stay low. At some point - approximately halfway through that corner - the car once again visibly settles. At that point, reapply throttle and continue on a close radius until you are halfway through T4. Let the car drift back onto the s/f straight. Again, balance throttle and steering input to keep the tires only squealing slightly or not at all.

On ovals it is critical to keep distances short, i.e. to stay on the inside of turns, but it is even more important not to crash. So, even if the car wants to move somewhere you don't want it to move to, let go instead of forcing it; don't overcorrect. Try to persuade the car into following your commands instead of using brute force. There's plenty of room in those turns at Loudon.

At Loudon, except for those two critical points, with a good race setup, the car handles quite reliably. This may be less so if you don't use pedals for gas/brake, of course.

As for passing the AIs, there are two ways to do that. Either you turn damage off and kick some butts, or you learn how to control your temper. The AI make all kinds of odd moves. I suggest you try to pass them at the exit of T2 and T4. Alternatively, you can pass them on the outside through all turns if you have a reliable setup. When you are behind a CC in one of the turns, be careful. At the exit, they might change lines without hesitation, kicking you off the track in no time at all. They like to do that in particular shortly after leaving T2 and shortly before entering T3. On the front straight, some are going to use odd lines, but be patient. You will be able to pass them eventually.

12. Phoenix

Phoenix - my favourite oval in ICR2. Located in the dry desert of Arizona - a state which I remember to be extremely clean, and which in winter has two completely different climatic zones - the north being snow covered, the south being nice and warm during the day. And sunny, not to forget .

Phoenix is a Tri-Oval, with three straights instead of two, as normal ovals do. Well, those straights at Phoenix are bent, but nonetheless they are fast. At Phoenix, good hotlap artists lap at average speeds of 191 mph, some even faster.

The track is made up of 5 corners, linked by three straights.

What do we need for a good setup? Well, mainly speed, but since those corners are rather tricky, we'll also need grip.

Therefore, we'll use a good measure of front wing, giving us the possibility to drive a clean, close line in corners, but little rear wing, a necessary requirement for high speeds on straights.

I set the fron a-r bar to a high value, because I wanted precise steering control, in particular in T1, and I could live with some oversteering tendency, since my pretty effective front wing would cancel that out.

Stagger is 1,000 - I wanted to get as much left-turning bias as possible.

The setup below is for hotlaps. For the race, use harder compounds on the outside tires. The shock settings are designed to provide for fairly equal load distribution across all four tires - the RF wheel getting most of the load, followed by the RR wheel.

The tire pressure on the left hand side are designed for maximum grip, those on the right hand side are a compromise between grip and keeping the tire temperature within the normal range of operation.

Don't forget to adjust camber, since that parameter is vital on ovals. Camber can get you that minuscule advantage of having slightly more grip than your competitor - and on ovals this is crucial. Set the gear in such a way as to always have the optimal revv available at _race_ speeds - you never start from standstill. Even the start is a flying one, so you don't need your first gear to support the range from 9 to 80mph. Instead, make sure you have the optimal revv range at race speeds.

Phoenix setup

Fuel: 2,0 **Steering Lock**: 6 **Front Anti-Roll Bar**: 7 **Rear Anti-Roll Bar**: 5 **Stagger**: 1,000 **Brake Bias**: 8 **Front Wing**: 15,60 **Rear Wing**: 7,20	**Gearbox**: *1st Gear*: 9,70 *2nd Gear*: 7,80 *3rd Gear*: 6,50 *4th Gear*: 6,00 *5th Gear*: 5,60 *6th Gear*: 5,30

Right Front Tire	*Pressure*: 36 psi	*Camber*: -1,80	*Shock*: 50%	*Compound*: soft
Right Rear Tire	*Pressure*: 36 psi	*Camber*: -1,20	*Shock*: 35%	*Compound*: soft
Left Rear Tire	*Pressure*: 32 psi	*Camber*: -0,20	*Shock*: 35%	*Compound*: soft
Left Front Tire	*Pressure*: 32 psi	*Camber*: -0,70	*Shock*: 50%	*Compound*: soft

The brake bias was set to the front, because if you set it to the rear, the car will oversteer more under braking, and at the high speeds we reach at Phoenix, this is something we certainly wouldn't want. Remember - any tire can only take that much load. Anything else you add in, e.g. braking while turning, decreases the load a tire can take in one of the two aspects - which usually ends with the tire losing grip. Therefore, we want max grip at the rear. At the front, we're coping with this through our increased wing setting, and through the fact that understeer on an oval isn't as dangerous as oversteer. However, remember also that frequent understeer will wear your tires prematurely.

Ok, this setup is a hotlap setup. For the race, add some rear wing, and set the rear a-r bars to a lower value. Also, use medium tires for the right hand tires.

Phoenix driving tips

As for driving around Phoenix - the problem is keeping the rear under control. There are two critical points, which are just before the entry of T1, and just after the entry of T4.

At T1, you'll have to brake somewhat. At that moment, you rear tends to break away. You could counteract this partially with excessive amounts of rear wing, but that would slow you down excessively as well. So, you'll have to modify your driving.

When approaching T1, start from the right hand side. After having passed the s/f line, continue for maybe 50 yards, then aim you car for a point on the left of the track just behind the edge of that little dip that leads down into T1. You don't see this point actually, but you already have to point the car at it now.

Then, brake without steering input, and wait for the car to settle down. Once the car has settled - you'll see that on screen - still don't accelerate, but start steering the car to the left. You won't be able to maintain a tight line, so don't bother. Allow the car to drift to the center or to the right of the track. No problem. Any extraneous steering input would send your rear into the wall now. So be carefull. After you leave T1, the car will be much more stable. Now try to leave T2 somewhere to the left or in the center of the track. If you don't make it, it doesn't matter, as long as you don't crash.

Accelerate flat out through T3, and follow the skidmarks.

Approach T4 on the right hand side, but - as with T1, you have to aim for the entry point of T4 on the extreme left hand side, _at_ the white line, before you even see that point. There is no need to brake, although I'd recomment you brake until you really know this entry by heart.

Ok, you're on the right, this side of the dip in front of T4. Get off the throttle, move over to the left and aim for the point descirbed above. The car will enter the dip, and if you are off the throttle, will stay pretty close to the left. You should almost touch the grass. Just coast through that section, until the car visibly settles down approximately at the point where you leave T4 ant enter T5.

Just before that point (if you're good) or on that point (if you're wise) reapply throttle. Accelerate flat out. Don't force the car to the left, just try to getr the fastest exit from T5 possible. Staying left will shortcut some track distance, but steering heavily will slow you down more than you want.

13. Portland

Hi there,

this is the new track guide for Portland. I hope the previous guides helped you in beating the CCs, and maybe even in achieving some hotlaps.

Let me start this guide with a few general comments on driving style. Some of you may find the setups I suggest in these guides - or maybe the ones I sent you or uploaded somewhere - nervous and difficult to handle. Well, that is, of course, a matter of setup philosophy and driving style. These setups make the car respond the way I want it to respond, and I like extremely quick responses, and the possibility of steering with the rear wheels, too. I like the rear end to come around now and then, because that allows me to drive closer through corners sometimes. On the other hand, this requires that you are very careful on the throttle - and sometimes on the brakes - in some locations, and that the setup allows you to very quickly catch the rear after it has broken lose, because every redundant split second of sliding will reduce your overall speed and your laptime.

This type of setup requires a high degree of self-control from the driver. You always have to be aware that even minor driving errors may send you off into the walls. The remedy for this consists of two components: you have to drive a very clean line, and you have to be acutely aware of how the car responds to your actions on each and every critical spot of the track.

There are many spots on each track which require specific driver action, like being off the throttle, or off the wheel, or using only moderate braking power or throttle or steering, unless you want to end up in the wall. The other possibility to make it past that spot is to dramatically reduce speed, but that's not what we want. In these spots, the car reacts particularly nervous to certain control inputs, and you as a driver have to notice that and learn how to avoid it.

I order to be fast on a track, you have to do a lot of learning for each track. I do that all the time, and I constantly learn more as I revisit a track; I keep my eyes open and try to modify my line or driving style on each track again and again. Sometimes, the change is for the better and makes me faster. On other occasions, it sends me off into the walls .

Portland is what seems to be one of the most slippery tracks in ICR2. There are lots of critical spots where the car won't behave the way you want it to.

Under these circumstances, it is important - more than on other tracks - to be aware of the fact, that throttle and brake greatly affect the line the car takes. Reducing throttle will make the car turn closer, increasing throttle slightly will make the car run wide, while hitting the throttle hard may make the rear slide - sometimes also a desired effect to keep the cornering radius small - or make it push, a less desirable effect.

Also, reducing brakes in a corner will make the car pull closer into that corner. Releasing or hitting the brakes abruptly may induce wobble and make the car uncontrollable on a slippery track like Portland, even with your shocks set to 100%. In Nascars it's more noticeable, but Indycars will also sometimes resent abrupt control input. And once again, be aware that every superfluous slide will cost you valuable split seconds and even the slightest unnecessary slide may spoil an entire fast lap.

The secret is once again, as on many other circuits - use more wing than your 'feeling' tells you to, use the appropriate tire pressures and be careful on brake and throttle.

Ok, here you are in the garage. What do we do first? Let's set the wings. You'll want fairly high speed on the two long straights, but you'll need lots of downforce through many of the turns and for braking at the end of the s/f straight. You'll need the car to have good grip in particular at the front, because at the rear you can always control it with steering and throttle. And - a good thing - the front wing will not slow you down as much as the rear wing does. So, try front wing settings of maybe 16. Much wing at the car's rear will slow you down, so chose as little as possible without making the car undrivable. I suggest you opt for a wing setting of 13 to start with.

You might set the shocks softer on wheels with excessively high tire temps, but I suggest you set them to 100% at the front and to 75% at the rear, and make up for different tire temps by adjusting the tire pressure, if necessary. The softer rear shocks will reduce the car's rear end's tendency to snap (slide surprisingly), however the car will react a bit more to load changes and require a more even driving style. Alternatively, you might consider reducing the left rear shock to 65, and setting the right rear to 80, but I wouldn't do that.

In order to support the rear shocks in their effort to prevent the car from snapping, set the rear a-r bar to a low setting, maybe even to 0, and the front one to one less than full, to give you precise control over the direction the car takes.

As for the tire pressure, try LF/RF/RR/LR 35/35/34/35. Of course you'll use soft tires on all four wheels, unless you are forced to drive the race at 120 degrees. Fill the car up with 5 gallons of fuel.

Set 1st gear to 11.90, and set 6th gear to max out at marker 3 of T1. The other gears should be at fairly even intervals in-between. With a Honda engine, max power is at 13,500rpm, with a Cosworth it is at 13,000. When accelerating from the last corner into s/f line, you should reach a speed of 177 at the s/f line, just to name a landmark.

Another crucial element is camber, even more so since you a using low tire pressures. You'll see that you need high negative values; take all the time it needs to find the perfect settings, until tire temps are even across the entire tire surface.

Having set up the car now, go get yourself a drink of ice tea. You'll need it, because Portland is going to be tough on your nerves.

Portland setup

Fuel: 5,0 **Steering Lock**: 12 **Front Anti-Roll Bar**: 7 **Rear Anti-Roll Bar**: 1 **Stagger**: 0,000 **Brake Bias**: 5 **Front Wing**: 16,00 **Rear Wing**: 13,00	**Gearbox**: *1st Gear*: 11,90 *2nd Gear*: 9,40 *3rd Gear*: 8,20 *4th Gear*: 7,00 *5th Gear*: 6,20 *6th Gear*: 5,50

Right Front Tire	*Pressure*: 35 psi	*Camber*: -1,30	*Shock*: 100%	*Compound*: soft
Right Rear Tire	*Pressure*: 34 psi	*Camber*: -0,70	*Shock*: 75%	*Compound*: soft
Left Rear Tire	*Pressure*: 35 psi	*Camber*: -0,90	*Shock*: 75%	*Compound*: soft
Left Front Tire	*Pressure*: 35 psi	*Camber*: -1,70	*Shock*: 100%	*Compound*: soft

Portland driving tips

Ok, do one warm up lap and meet me at the start of the s/f straight.

There you are. Heehee. Ended up in the wall of the corner at the entry of the s/f straight, huh? That's Rookie Corner, as we call it .

Come out of the grass onto the tarmac. I'll teach you how to survive that corner after we get back from our lap. Accelerate full into 6th. At marker 3, brake full while you are at the extreme left hand side. This time -as opposed to Detroit - use the patch of grass at the inside of T1 in order to make it through T1. However, if you want the hotlap to count in the charts, don't use all of it and make sure there are always 2 wheel on the track. Aim for the patch of grass at the apex of T1. Start steering into T1, heading for a point at the wall right before the visual apex of T1. Try to be close to the wall in the grass before the apex of T1; that'll make you faster, eventually. Then aim for a spot just this side of the apex of T2.

Depending on how fast you are and how stable the car is at that moment, either stay on the brakes until you reach that point, or do some intermediate acceleration and brake again right away. Then - you should be in 1st gear by now - let the car slip around the corner until you reach the apex, and then aim for a point somewhere at the right hand side of the track. Let the car take you there, don't force it. Try to accelerate as rapidly as possible, but not by hitting the throttle rudely, but by being gentle on the throttle and by not forcing the car to turn too steeply, because that would make you rear wheels spin. So, after having passed the apex, gently add some throttle, and as soon as the car

has turned far enough for you to be sure that you'll not end up in the grass, apply as much throttle as you can without making the rear wheels spin.

Stay on the right hand side into the subtle right hander T3 and allow the car to drift over to the left. Accelerate into 5th, before you brake for T4. Do not apply full brakes, but just enough to allow you to pull over and touch the white line at the inside at the _entry_ of that turn, or just behind that entry. Pull over as far as you can; it is important to be at the extreme right hand side at this point. Continue to brake gently through T4; let the speed carry you back to the center line of the track; you should now be right between T4 and T5. At this point you should be able to point the nose of your car at the grass at the inside at or just behind the _entry_ of T5. Then, gently reapply throttle - you are probably in 2nd or 3rd gear now.

Accelerate full through T5 and drift over to the left hand side. When you touch the left hand white line, brake for T6. You may brake hard for a moment, then gently release the brake until you feel that the cars moves towards the inside (right hand side) of T6. Again, it is important to be near the white line just behind the _entry_ into T6. Use brake (while still necessary), and then throttle to keep the car on that side through T6. Accelerate slightly through T6, until accelerating full will still carry you to the whitel line at the inside at or just behind (you knew this already, didn't you?) the entry of T7. Through T6, your speed should be between 68 and 78mph. Accelerate full until you reach max revvs in 2nd; you are now on the left just after the entry of T7, a long left hander (almost two turns, in fact). Brake full and let the car drift to the right hand side as far as you have to. However, try to abbreviate that procedure, because sliding will cost you time.

Therefore, if you feel you're going to lose it, remind yourself that often releasing the brakes somewhat will give you back some steering capability - and even releasing the wheel slightly will often have the same effect - which might get you further through that turn than simply staying full on the brakes or simply holding the wheel clamped in full left (or right) position. In general, it is a good idea to listen to the tires. If they squeal just slightly, everything is ok, but that's the limit. Once they squeal louder, you have lost grip. At that point, applying more steering input will not bring you any closer to the inside of the corner. Instead, _reducing_ the steering input somewhat might give you a closer line. Check that out. I do that all the time, and it works.

Ok, you're now somewhere before the apex of T7, in the center or on the right hand side of the track. Now, gently apply throttle and see what the car does. If it pushes too hard, release throttle somewhat or try to make the rear slide by pumping the throttle. If you have applied the right amount of throttle, the car will gently make its way over to the inside of that corner. You should aim to hit the left hand side white line at the exit of T7.

Accelerate full into 3rd gear until the entry of T8. Brake gently into that turn and try to be on the right hand side near the line - where? Right! Just behind the entry of T8. Again, reduce brakes in order to allow the car to stay on the right. Stay close to the white line, touch the line for a moment and then accelerate gently (not full) to keep the rear steady. You should accelerate maybe up to 78 or 80mph in that turn. Then, aim for the left hand side white line between T8 and T9, a shallow left hander, still accelerating carefully. As soon as you have the rear under control, accelerate flat out and drift over to the left.

The long straight (or turn, depending on the point of view) is driven flat out. At it's end, brake hard at marker 3 for a moment, but release brakes early and aim for the inside of the track _at_the_entry_ of T10. Here, the game fools you a bit. If from within the cockpit it looks as though you're halfway

in the grass with the two left hand wheels, you're doing perfectly. In the replay you'll see that you havn't left the tarmac at all. The same applies to the following T11, by the way.

This '2' combination, T10/T11 is classical. Cut (optically) through the grass to the left of T10 with two wheels, then drift over to the inside of T11 _early_ and do the same. Stay off the throttle until you are almost through T11, then apply some throttle if you want, but it is safer to stay off the throttle altogether. The track is slippery, there. Brake full into T12. I usually try to be on the inside just before the entry of T12, then slip around that corner without accelerating, then I'm gently back on the throttle to keep the rear steady, before accelerating flat out down to the s/f line.

Pooh, lots of work on that track, isn't it? This should have been a lap somewhere in the 59's. What? What? 1:02.345? Oh, I'm so sorry - I forgot to mention that you should have set boost to full. But with that, you'd certainly have made it into the 59's, definitely .

Now, as for the CCs, they're the same on all tracks - relentless, unyielding, belligerent, and always in your way.

You have to distinguish backmarkers from the hot shots.

Good points for passing the hotshots are T1, where you can outbrake them, T2, where you can out-accelerate them, and T12, where you can outbrake or out-accelerate them.

Rather disputable occasions would be at T6 and T8. There, you _can_ pass, but it is risky.

Good points for passing backmarkers are in addition to the locations described above on the straights, because they are fairly slow (I tested at OPPS settings of 104).

Points where you definitely should not pass are plenty as well, T4, T5, T7, T9, T10, T11. You might stand a chance of passing at some of these points, I wouldn't take a chance.

Ok, this is it for now. Enjoy your race at Portland. If you have any questions or comments, drop me a note.

14. Toronto

Bonjour! Ici nous sommes a Toronto - une ville avec l'air Canadienne tr`s prononce (no, I'm not going to write this in french).

When you approach Toronto by car, it looks perfectly like any American city with all the skyscrapers etc., unlike Montreal, which has many European aspects. And although they still speak English there - there's always an imminent risk of meeting someone who will not understand you or pretend not to .

So, brush up your French a little before coming here. After all, there might be beautiful French or Quebec women around the track, and you'd at least want to be able to tell them you're that aspiring hotshot the news are talking about, ready to take the pole and win - and then have as much wine, women and song as you can take .

The Toronto track is fit smugly into the city. The surface has more grip than e.g. that of Detroit, rather like Vancouver, and the track is full of corners of varying angles, which make it interesting to drive and challenging for the driver. Although setup is important on all tracks, Toronto is more of a driver's track. The drivers abilities will decide, not the setup or the engine power, since most of these corners are less than 120 degrees in angle, so a clean driving style and decent cornering technique are in demand (in 180 degree turns, all you basically can do is steer and wait until it's over).

Anyway, let's move over to the garage and do a little tweaking on the setup. Can't hurt either, what do you think?

First, you have to determine how you drive, i.e. what your personal driving style is. There are two major groups of drivers, of course with subgroups amass. Group 1 drives the car with the front wheels, group 2 mainly uses the rear wheels. BTW, this is true for motorcycle drivers as well. This may sound cryptic to you at first, but think about it for a while. Try to determine which end of the car seems to be more controllable for you. Would it scare you more to lose the front end, or the rear end? Which countermeasures come to you more easily - those required to catch the rear, or those required to handle an understeering car.

Group 1 drivers need reliable front ends, because that's where they get their speed, and then they concentrate mainly on mastering the bucking rear. Group two drivers try to achieve their cornering speed by wildly swinging the car's rear around.

I try to get the best of both worlds. Actually, I prefer to drive the car based on the front wheels - maybe because I did a lot of motorcycle racing in my younger days, and most German motorcycle drivers tend to keep the rear steady and drive as precise as possible using the front wheel - as opposed to American drivers like Kenny Rogers, for example.

Also, each slide usually costs valuable time, because during sliding you can't brake or accelerate effectively. I try to sometimes induce minuscule rear-wheel slides if this allows me to get faster through a corner, but I usually try to avoid any extraneous sliding and drive the cleanest line possible - i.e. the line which requires the least and subtlest control input possible.

Thus, my setups have to be slightly on the nimble side at the rear end, but quite reliable at the front end. The front end is easy to control with my setups and all I have to do is find the fastest line through a corner. In order to control the rear end, I have to concentrate on using moderate control inputs at those critical locations on each track.

Since there are lots of corners and only one straight where you really reach max revvs at Toronto, use a good measure of wings. That'll make you faster through all these corners, valuable time you simply can't lose on that one long straight stretch. On the other hand, too much wing will eventually start nibbling those valuable split seconds off your laptimes, split seconds you have to make up for with your driving capabilities and by taking risks. So, we compromise for lots of front wing, and a decent measure of rear wing. For my hotlaps at Toronto, I currently use a F/R wing ratio of 17.4/12. This allows me to reach top speeds of 192 on the long straight.

Since the rear wing setting is rather shallow, you'll have to be careful on the throttle. Full on/full off doesn't work here. Often, you'll get better acceleration from using only 30% or 50% of the available power, in particular out of corners. Also, brake hard first, then let the car drift into the corner by gradually releasing brakes as your cornering angle gets smaller.

Well, back to the setup. You'll need good grip, but also quick responses. Your tire pressure should be F/R 36/37. That makes the rear end quick and responsive and gives you a little oversteering tendency combined with the ability to quickly catch it again and get the rear out of the sliding condition. At the front, you'll have a car that runs around corners like on rails - except in T1, where you'll always drive on the limit. A-r-bars should be between full and two below full to give you sufficiently quick responses.

Your gears should start at 11.90 and max out in 6th (remember, 13.200 for Cosworth, 13.500 for Honda and Mercedes) just before you reach the last bridge on the long straight. That's your brake point for T2, BTW.

I'd set all shocks to 100%, but if you can't handle this, soften them a little, and if you feel that you can't handle the oversteer, reduce the rear shocks somewhat more (maybe to 15% softer than the front shocks).

Also, if the car is too nimble for your liking, reduce tire pressure to 35/36 or less, depending on the environment temperature and the temperature distribution across the tire surface.

Toronto setup

Fuel: 6,0 **Steering Lock**: 12 **Front Anti-Roll Bar**: 6 **Rear Anti-Roll Bar**: 6 **Stagger**: 0,000 **Brake Bias**: 4 **Front Wing**: 17,40 **Rear Wing**: 12,00	**Gearbox**: *1st Gear*: 11,90 *2nd Gear*: 9,30 *3rd Gear*: 7,80 *4th Gear*: 6,80 *5th Gear*: 5,90 *6th Gear*: 5,60

Right Front Tire	*Pressure*: 36 psi	*Camber*: -2,10	*Shock*: 100%	*Compound*: soft
Right Rear Tire	*Pressure*: 37 psi	*Camber*: -1,70	*Shock*: 100%	*Compound*: soft
Left Rear Tire	*Pressure*: 37 psi	*Camber*: -1,40	*Shock*: 100%	*Compound*: soft
Left Front Tire	*Pressure*: 36 psi	*Camber*: -2,10	*Shock*: 100%	*Compound*: soft

Toronto driving tips

Our first lap around the track should be a warm-up lap, as always. Heat up the tires, but don't burn them on this lap. The second lap is already a fast one. On some tracks, it takes two warm-up laps, but at Toronto you can already be fast on the second lap.

Sometimes I only fill in fuel for two laps, do the first lap as a warm-up with reduced boost - avoiding any tire squeal - and the second lap being the first an final hotlap of this sessions. That way, you get the freshest tires, without carrying with you any excessive fuel. In general. don't use more than 5 gallons for hotlapping.

Ok, build up some speed now. In the final corner of our warm-up lap - that is where the s/f line is - you should be in 5th gear. Try to cross the s/f line on the extreme left, and then drift over to the right. Accelerate flat out until just behind the pedestrian's crossing. At this point you should again be on the left of the track. Always listen to the tires. Any squealing tells you that you're losing time. Do whatever is needed to avoid that - either reduce steering, or reduce throttle slightly for a split second. Often, even the subtlest reduction of throttle will already solve the problem.

Just after the pedestrian's crossing, brake full and pull over to the right little later. Aim for the wall at the inside apex of T1. It is essential that you use the brakes for achieving the best compromise between maximum deceleration and driving on the groove, the latter meaning that you have to get as close to that wall at the apex of T1 as possible. Again, is is the interaction between steering more/less and braking harder/less hard that will give you the best compromise.

You should pass the apex at a speed of 60mph in 1st gear.

Once you get past that apex, permit the car to drift over to the left. Don't apply excessive steering. You should accelerate soon after passing the apex, but extremely carefully, so as to not have the rear wheels spin (which is important for getting maximum acceleration) and also in order to avoid hitting that left hand wall. Not steering much in this post-apex situation will help you build up speed and yet get the car around that corner.

When you can easily do so, pull over to the right again, in order to shortcut some of that long curved straight. You should shift to 2nd while you're still in the 7 seconds laptime range, and shift to 6th just before the laptime counter says 13 seconds.

It is in general essential that you don't abuse the car, but instead use it to your advantage. If you let that car have it's own way and watch, you'll see that it always does things that will support your intentions and things that will counteract your intentions. The secret of getting the maximum out of a car is to enhance those actions of the car which support your intentions, and on the other hand to _not_ enhance actions that counteract your intentions. Let me give you an example. At Toronto, in T5 - a long right hander - the car will usually oscillate - it will alternatingly push over the front wheels and swing the rear end to the left, and then push again and swing again.

What you do here is, if you are just about to hit the wall with the right front wing because you are running too close, allow the car to push somewhat. Allow it to move away from the wall, don't fight the car's natural actions. If at that moment the rear is swinging to the left, obviously you don't want that that to happen, because it would direct your nose even further towards the wall. So, you have to try and balance the car.

If, however, the car is running wide in that turn, you'd certainly welcome some outward swing of the rear end, because it would help you to maintain a line close to the wall, giving you more room for accelerating at the corner's exit.

At Cleveland, for example, where you have long, sweeping turns, you want to accelerate as early as possible in those turns, in order to get through there as quickly as possible. However, if you accelerate early, there's a risk that you will end up in the grass, because the car pushes when you accelerate. On the other hand, you'll always sort of 'pump' a car through those turns, constantly balancing out the car's tendencies to push or oversteer. So, what you do is, you don't accelerate while the car is pushing, but while it is oversteering. Of course, you don't accelerate hard enough to make it swing too severely - you accelerate just enough to use the cars tendency to drive a closer line at that moment, to support the car in it's effort, and you don't fight it. You don't fight the car if it does something you want to achieve anyway.

Ok, back to Toronto. Accelerate flat out until the last bridge. At that bridge, brake hard and stay left until you've slowed down considerably. Then, still braking, you pull over to the right _late_, again trying to get close to the wall _late_, because that turn is long and narrow. You should be near the wall where it begins to recede into the corner and follow the wall as it recedes, still braking down to perhaps 30 mph. If you drive a wider line - rather from the center of the track - you should take that corner at about 40mph. When you are at min speed, turn right after releasing the brakes. As soon as you can do so without getting pushed into the left hand wall, accelerate carefully, aiming to drift over to the left and stay there through T3.

T3 is a left hander, not much of a turn, but if you accelerate hard, you'll need to drive a clean line through it, or you'll lose valuable split seconds. Drive through T3 on the left; after passing ist apex, continue to accelerate hard and drift over to the right. When you get into 3rd, or when 2nd really maxxes out, you'll brake full for T4. Stay on the right, brake hard, and when you have slowed down to maybe 100mph, pull over to the left earlier than you would normally. You have to cut through T4 scratching the left hand wall near the apex. The apex is not as far through the corner as you'd think, therefore, move over early. Use the overhead view in a replay to determine the actual apex of T4.

Your speed into T4 should be in the high 90/low 100mph range, but when you're at the apex, you should be down to 60. Again, be careful on the throttle when you accelerate, but don't wait too long. Allow the car to move over to the right. You should be near the right wall where that wall starts being straight again. Then bring it back to the left as soon as you can without inducing tire squeal, sliding or wheelspin.

You'll enter T5 from the extreme left. Your speed through that turn is between 70 and 90mph. You have to get close to the inside wall pretty early, maybe between 25% through T5, and then follow the wall closely until you see the end of that turn over on the left hand side. I always try to give the car a little oversteer through this turn, because this allows me to stay on the inside while on the other hand being as fast as possible. However, don't induce too much oversteer, because as soon as you can safely accelerate - which is pretty early, at about halfway through T5, the little swing should have settled down again to allow you maximum acceleration. Maximum here spells ,as much as you can without spinning the wheels". Through T5 I am usually in 1st gear, and at the exit of T5 I am at max revvs in 1st and on the left hand side of the track.

The car will drift over to the left, and that is ok. You should switch into second when leaving T5. The following two turns, T6 and T7, are taken flat out. They are that classical type of corners which are cut by touching the inside apex. Out of T7, you should still be in 5th, accelerating hard. You might consider shifting into 6th, but I wouldn't.

You'll brake _after_ marker 3. I know this is going to make you end up in the wall several times initially, but if you want to be fast, you'll have to learn this. It _does_ work. You have to find the right balance between braking and steering in order to take T8 at max speed, which is somewhere in the mid to high 50mph range, while in the exit section of T8 you should already accelerate slightly again and build up speed, may be 63mph.

Ok, T8: after marker 3, brake hard. Stay on the left until you are down below 80mph. You have to gradually reduce braking force while pulling over to the right, in a narrowing radius. Get as close to the wall as possible at the apex of this turn. If the car starts pushing, steering less may help, because that will give some grip back to the tire. Also, reducing the braking force may help as well. At the apex, you should have reached minimum speed in the mid-50's. Stop braking. If you're still slightly too fast, try to balance this out with the steering wheel.

Let the car drift to the left, and accelerate carefully. For T9, you have a range of choices as for the line. I try to start into it from the middle of the track or from the right hand side, but only if I can reach that side easily. Also, it is not crucial to accelerate to ultra-high speeds before T9. Rather, it is important to find the fastest line through T9 - which is to be on the extreme inside at the apex - because in T9 you'll start building up the speed you'll carry through the remaining part of the track until the s/f line. That remaining part is _much_ longer than the short straight between T8 and T9, and thus far more time can be lost or gained there than where you are currently.

So, accelerate, but your main goal must be to get into a good position for entering T9, and - more important - for leaving it at the maximum possible speed.

Accelerate early, but sometimes waiting a tick longer may make you faster eventually, because it will save you from sliding around. You should crank 1st to max perhaps, but that's all the speed you need on that stretch. Pull wide and try to drive through T9 at speeds in the 70mph range. Brake slightly, pull over to the left, be off the throttle, let the car move through T9, and then accelerate avoiding wheelspin while drifting over to the right. You'll approach the right hand wall where the advertising begins. The following straight stretch again is a wide S for you, as you try to make it back to the left. From now on you don't brake.

Try to be back on the left just before where the images on the wall start, because this is the best turn-in point for T10. Shortly after the first images (advertising) - you are in 3rd, shifting to 4th - pull over to the right into T10. Don't brake. Try to stay as close to the inside wall as possible, and follow the receding wall as long as you can without having the tires squeal. Release the throttle momentarily, if you have to, in order to stay right. Drive parallel to the right hand wall, then pull over to the left so you are closest to the left hand wall more or less right where the s/f line is.

Ok, this was a lap at Toronto, on board with Captain Achim. Please don't throw up into the car, and please don't sue me for causing wrecked nerves or anything else.

As for the CCs at Toronto, they are as much fun as anywhere else. Best, use damage OFF and kick some butts, if you can .

No, seriously. There are 5 decent locations for passing on the Toronto track. All of them include outbraking the CCs. Obviously, if you are sufficiently faster than they are, you'll be able to pass them on any straight, but usually you'll set your OPPS setting so that you'll not be sufficiently faster. In this case, you'll have to outbrake them.

The best locations for this are T1 (at the end of the s/f straight), T2, T4 and T8. At these corners, try to be to the right of the CCs, because they'll usually brake sooner than you do. However, don't wait too long before you get back on the throttle, because they'll fight hard for position and will mercilessly bump into you if you don't get out of the way - and you won't believe how sturdy their cars are. Usually, you'll end up in the walls, and they'll be up and away without any damage or delay. Also, you car will spin erratically into all impossible directions. So, don't crash - fast in, fast out is what you have to do.

During the start, if you are in the middle or in the back of the field, be careful because they brake early for T1 and tend to create quite a mess in the early corners of a race.

At T2, you'll have a little more room. There, they need a little longer than in T2 and T8. T4 is quite good as well. Try to be on the left side a bit. The CC will need some time to get through that corner if you outbrake him properly, and the radius of that corner allows you to pick up speed quickly, not giving the CC a chance to harrass you.

T8 is tricky. Fast in - fast out is all I can say about that corner.

15. Vancouver

Still in Canada - did you know that the name Canada in a German local (Bavarian) slang means nobody at home" ? Not a bad name for such a huge country with relatively few inhabitants.

Well, but they got great racetracks in Canada. Toronto and Vancouver are the two you'll find in ICR2. Currently (July 96) , my personal best at Vancouver is a 53.081. That means Vancouver is a short track - which in turn means that it's good for hotlapping: whenever you make a mistake, you'll get another chance for a good lap just a few seconds later.

The Vancouver track is all corners, with one full-speed straight. Actually, it resembles Toronto a lot, as far as the ratio of slow/fast corners and straights is concerned. You will need lots of grip and a car which is capable of changing directions quickly, but you'll also need top speed, because the s/f straight is really long. You'll reach speeds in the 190's there. With my setup, it'll be 193, to be precise.

Since there are so many corners crammed into that track and you need to change directions, you'll need the a-r-bars to stabilize your car, but if you stiffen them extremely, you'll lose overall grip and heat up your outside tires excessively. so, don't use full hard a-r bars. Chose a setting in the range from full minus 1 to full minus 3.

As for the remaining settings, the Vancouver setup resembles Toronto setup. Set all shocks to 100%. This will make the car _feel_ slippery, however it'll give you high cornering speeds and the capability of recovering quickly from slides, which you will not be able to avoid on that track.

If you have a problem handling the car with this setting, soften them, but not below a setting of 60%.

Set the front wing to 17. The rear wing should be 11. You'll need to be able to follow the groove precisely, so you don't want much understeer. On the other hand, it is easier to control the rear by using the throttle diligently than to control an understeering front with all those quick changes of direction at Vancouver.

Higher wing settings will slow you down on the straight, lower settings will make the car nimble through the corners. 17/11 (not 7/11) gets you the best of both worlds.

Reduce wheel lock to perhaps 16. There are two narrow turns, but neither will cause you problems. Also, use tires pressures of perhaps as low as 33 for the front wheels - although this will give you an inhomogenous temperature distribution at the front wheels during the first couple of laps, it will give you good grip. If you feel uncomfortable with that temp problem, use 34 on the left front wheel, because that is where you'll see the problem most. For the rear wheels, I'd use higher pressures, like 38 on the LR and 37 on RR. The LR tends to build up more heat, and you'll want to do something about it.

However, this also depends on the environment temperature you set. Except in races, there is no problem with setting rear pressures to 35/35 as well, but I have found it slows me down, although I can't explain it this time. I usually know quite well why things happen, but this is a gut thing. Maybe it'll be different for you.

Ok, what do we have - wings, pressure, a-r-bars, wheel lock - sure, we need to find the right gears. As I said, 6th gear should max out 13200 for Cosworth and 13500 for Honda and Mercedes engines maybe 300 yards before marker 3 of T2 - the hairpin at the end of the s/f straight". The other gears should be at fairly regular intervals in between, 1st gear should be 11.90, but that's a point for discussion, as in some corners it would be advantageous to have some rev range left in 1st, whereas you need absolute low-speeds only in two corners on this track.

Do the following. In T9, you should be in 1st, of course. If you accelerate full to T10, you should almost reach max revs in 2nd gear just before you have to brake for T10 again. This will require slightly different gear settings depending on your driving style.

Vancouver setup

Fuel: 10,0 **Steering Lock**: 12 **Front Anti-Roll Bar**: 6 **Rear Anti-Roll Bar**: 6 **Stagger**: 0,000 **Brake Bias**: 5 **Front Wing**: 17,00 **Rear Wing**: 11,00	**Gearbox**: *1st Gear*: 11,90 *2nd Gear*: 9,30 *3rd Gear*: 7,30 *4th Gear*: 6,80 *5th Gear*: 6,00 *6th Gear*: 5,50

Right Front Tire	*Pressure*: 33 psi	*Camber*: -2,00	*Shock*: 100%	*Compound*: soft
Right Rear Tire	*Pressure*: 37 psi	*Camber*: -1,60	*Shock*: 100%	*Compound*: soft
Left Rear Tire	*Pressure*: 38 psi	*Camber*: -1,50	*Shock*: 100%	*Compound*: soft
Left Front Tire	*Pressure*: 34 psi	*Camber*: -2,10	*Shock*: 100%	*Compound*: soft

Vancouver driving tips

So now, if you've read the previous guides, you already know that I want you to fill in - this time it's four gallons of fuel. This will give you just enough fuel to complete three laps - if you save a little on the intro lap by reducing boost to 1 while you're on the s/f straight. The Mercedes might require that low setting for a little longer.

Ok, do that warm-up lap now - take it easy, don't burn the tires on the intro lap, and meet me at the exit of the long hairpin that precedes the corner that eventually brings you back onto the s/f straight.

In that hairpin, position the car with the rear end set towards the wall, so you can start almost straight through the exit of the hairpin into the final corner and onto the s/f straight.

Ready? Everything checked? Boost up to max again? First gear set? Let's go.

Go flat out towards the right hand wall, and then cross over to cut the final corner close to the left hand wall. Follow the wall until it spits you into the s/f straight. Let the car drift to the right. Way before the s/f line you'll be in 5th, and in the middle between the s/f line and the end of the left hand wall at the exit of the pits you'll shift to 6th.

Try to keep the line as short as possible by shortcutting T1, a long left sweep of the s/f straight. Try to speed by the end of the wall at the pit lane exit as closely as possible and continue to aim for a point near the left hand wall slightly behind the end of T1. Get close to the wall, but not too close, because the wall protrudes a little further into the track than your eyes tell you at first sight. Also, try to watch the speed. If you steer too much, you'll prevent the car from accelerating freely. At the

exit of T1, your speed should be 178/180mph. Continue on a line somewhere to the left of or in the center of the track, until you get to see T2, a shorter right hand sweep which is taken flat out. Move over to the right and follow the skidmarks. When you see marker three, allow the car to drift over towards a point in the middle behind that marker and the entry into T3. You'll brake clearly before this marker. Brake hard, and try to make the remaining stretch before T3 a long right hand sweep. Don't stop braking until you're down to approximately 32mph. Your sweep should have taken you to the inside wall at exactly the point where it starts receding to give way for the first part of T3, which is just a prelude in terms of radius and difficulty for the second part of T3, which is almost a hairpin. You are still braking, allowing the car to run a little wider now in order to give you more room for the turning into the would-be-hairpin section of T3.

When your speed is in the low 30's and you're approximately on a point where a quick right turn will allow you to accelerate full again through the would-be-hairpin, release the brakes and turn right hard. As soon as the nose of your car is pointed at the exit of the hairpin" section, get back on the throttle carefully. You should be back to a speed of at least 52mph when the laptime counter switches to 14 seconds. Head for the left hand wall in order to shortcut T4 which immediately follows T3, and then accelerate flat out while drifting over to the right. Drive parallel to the right hand wall for a moment, and when your 3rd gear maxxes out, brake hard and turn into T5.

Move over to the left early and sneak along the wall as smugly as you can. When you're down to maybe 60 or 50, release the brakes and glide through there without creating much wobble. Try to make the following corner one long sweep which takes you from the left hand wall, where you currently are, to the point where the right hand wall becomes straight again for a moment. Allow the car to drift to a point a distance away from the wall right in the middle of that turn, T6, and then continue your sweep back over to the right, again approaching the right hand wall to meet it somewhere near the inside apex of the exit of T6.

At that inside apex, you'll point the car's nose to the left hand wall of T7, already accelerating carefully. Through T6, your speed was somewhere around 50mph, but now you're picking up speed again. Try to shortcut T7 as best as you can and allow the car to drift over to the right hand wall at the exit of T7. There's more room than catches the eye, so check out how far you can go there.

As you follow the right hand wall, your car's nose is again pointed at a point on the left hand wall of the following straight right in the middle between T7 and T8. As you shift into 3rd, you laptime counter should jump from 24 to 25 seconds. Make that straight one long sweep that takes you almost straight through T8.

Brake hard for T9 while you drive parallel to the right hand wall, and cut over early to meet the left hand wall prior to the visual apex of T9. At that point, you should be in first and no longer braking. Allow the car to drift back to the right as far as necessary, but not further than necessary, while accelerating again.

As 2nd maxxes out, brake hard for T10. You'll need to be close to the right hand wall soon after T10 starts, because of the two different radii t10 has. Shift into 1st, and accelerate carefully as soon as you can. Try to give the car a little twitch with the throttle or the steering if you have to in order to exit into the right direction, but don't overdo this.

Through T10, you'll drift over to the left and leave T10 far over to the left, steering into T11, a minor left hander. BTW, as you accelerate through T10, the lapcounter should jump to 37 as you shift into 3rd - or a little later, if possible.

The remainder of this section - T12 or a long bent straight, depending on how you want to put it - is one long right hand sweep at varying angles. First, allow the car to stay on the left or in the center of the track, but you should be close to the right hand wall where the advertising on the right hand wall starts, or rather shortly thereafter, that is. At that point, you should be revving high in 5ths. Brake early for the final hairpin. You may take this hairpin running wide, which allows higher cornering speed, or close to the right hand wall, which shortcuts some of the distance.

Whichever way you go, finding your personal brakepoint and braking hard until you are slow enough for the right turn is essential, since in that hairpin you can easily lose an entire seconds if your car under- or oversteers excessively. Both will prevent you from accelerating in time. You should be accelerating again when the counter says 46 and is about to switch to 47.

Let the car decrease speed until you can safely turn without inducing any sliding on neither end of the car. I usually use the wider line. Then take that corner in one short, decisive sweep and get back on the throttle.

Taking the final corner has been described at the beginning of this tour. If you end up with a 53.3xx to .5xx, you've done very well.

As for the CCs, oh well . Of course, if they're much slower than you, as on all tracks you can pass them anywhere you like. If not, Vancouver is trickier than most other tracks, since it is basically _all_ corners.

At the start, unless you're in front or starting from a position in T1 or have pacelap on, you could try to pass the cars ahead of you by driving through them - yes, I mean through them on the center line of the track. However, this will only get you 4 to 6 positions.

With pacelap on, be careful, as the CCs brake for T1 (silly, isn't it?) and drive across the track a bit erratically there. Also, they brake early for T3 - actually way before they reach T2 - that's because the cars ahead of them brake in lap 1.

There are only three good locations for passing at Vancouver. #1 is T3. Drive on the right hand side of the track and outbrake those CC cowards - as usual they brake early.

#2 is T9, where you can outbrake them on the left, and #3 is T13, where you can outbrake them on the right hand side.

In each of these corners, don't hesitate to get back on the throttle early when you pass CCs, because they will try to regain their position from you immediately.

Lane's Rookie RACE Setup for Australia

Fuel: 38,0 **Steering Lock**: 18 **Front Anti-Roll Bar**: 5 **Rear Anti-Roll Bar**: 4 **Stagger**: 0,000 **Brake Bias**: 5 **Front Wing**: 17,00 **Rear Wing**: 17,80	**Gearbox**: *1st Gear*: 10,90 *2nd Gear*: 8,80 *3rd Gear*: 7,30 *4th Gear*: 6,50 *5th Gear*: 5,70 *6th Gear*: 5,40

Right Front Tire	*Pressure*: 35 psi	*Camber*: -2,10	*Shock*: 50%	*Compound*: soft
Right Rear Tire	*Pressure*: 38 psi	*Camber*: -1,70	*Shock*: 35%	*Compound*: soft
Left Rear Tire	*Pressure*: 38 psi	*Camber*: -1,40	*Shock*: 35%	*Compound*: soft
Left Front Tire	*Pressure*: 35 psi	*Camber*: -2,10	*Shock*: 50%	*Compound*: soft

Lane's Rookie RACE Setup for Cleveland

Fuel: 40,0 **Steering Lock**: 16 **Front Anti-Roll Bar**: 4 **Rear Anti-Roll Bar**: 5 **Stagger**: 0,000 **Brake Bias**: 5 **Front Wing**: 17,60 **Rear Wing**: 17,40	**Gearbox**: *1st Gear*: 10,90 *2nd Gear*: 8,80 *3rd Gear*: 7,30 *4th Gear*: 6,50 *5th Gear*: 5,70 *6th Gear*: 5,40

Right Front Tire	*Pressure*: 35 psi	*Camber*: -2,10	*Shock*: 45%	*Compound*: soft
Right Rear Tire	*Pressure*: 38 psi	*Camber*: -1,70	*Shock*: 30%	*Compound*: soft
Left Rear Tire	*Pressure*: 38 psi	*Camber*: -1,40	*Shock*: 30%	*Compound*: soft
Left Front Tire	*Pressure*: 35 psi	*Camber*: -2,10	*Shock*: 45%	*Compound*: soft

Lane's Rookie RACE Setup for Detroit

Fuel: 40,0 **Steering Lock**: 18 **Front Anti-Roll Bar**: 6 **Rear Anti-Roll Bar**: 6 **Stagger**: 0,000 **Brake Bias**: 5 **Front Wing**: 17,80 **Rear Wing**: 17,40	**Gearbox**: *1st Gear*: 11,00 *2nd Gear*: 8,80 *3rd Gear*: 7,30 *4th Gear*: 6,50 *5th Gear*: 5,70 *6th Gear*: 5,40

Right Front Tire	*Pressure*: 35 psi	*Camber*: -2,10	*Shock*: 50%	*Compound*: soft
Right Rear Tire	*Pressure*: 38 psi	*Camber*: -1,70	*Shock*: 25%	*Compound*: soft
Left Rear Tire	*Pressure*: 38 psi	*Camber*: -1,40	*Shock*: 25%	*Compound*: soft
Left Front Tire	*Pressure*: 35 psi	*Camber*: -2,10	*Shock*: 50%	*Compound*: soft

Lane's Rookie RACE Setup for Elkhart Lake

Fuel: 40,0 **Steering Lock**: 18 **Front Anti-Roll Bar**: 6 **Rear Anti-Roll Bar**: 5 **Stagger**: 0,000 **Brake Bias**: 5 **Front Wing**: 17,60 **Rear Wing**: 17,60	**Gearbox**: *1st Gear*: 11,10 *2nd Gear*: 8,90 *3rd Gear*: 7,50 *4th Gear*: 6,70 *5th Gear*: 5,90 *6th Gear*: 5,40

Right Front Tire	*Pressure*: 35 psi	*Camber*: -2,10	*Shock*: 80%	*Compound*: soft
Right Rear Tire	*Pressure*: 38 psi	*Camber*: -1,40	*Shock*: 20%	*Compound*: soft
Left Rear Tire	*Pressure*: 38 psi	*Camber*: -1,40	*Shock*: 20%	*Compound*: soft
Left Front Tire	*Pressure*: 35 psi	*Camber*: -2,10	*Shock*: 40%	*Compound*: soft

Lane's Rookie RACE Setup for Laguna Seca

Fuel: 40,0 **Steering Lock**: 17 **Front Anti-Roll Bar**: 6 **Rear Anti-Roll Bar**: 6 **Stagger**: 0,000 **Brake Bias**: 6 **Front Wing**: 17,80 **Rear Wing**: 17,40	**Gearbox**: *1st Gear*: 10,90 *2nd Gear*: 8,80 *3rd Gear*: 7,30 *4th Gear*: 6,50 *5th Gear*: 5,70 *6th Gear*: 5,40

Right Front Tire	*Pressure*: 35 psi	*Camber*: -2,10	*Shock*: 50%	*Compound*: soft
Right Rear Tire	*Pressure*: 38 psi	*Camber*: -1,70	*Shock*: 35%	*Compound*: soft
Left Rear Tire	*Pressure*: 38 psi	*Camber*: -1,40	*Shock*: 35%	*Compound*: soft
Left Front Tire	*Pressure*: 35 psi	*Camber*: -2,10	*Shock*: 50%	*Compound*: soft

Lane's Rookie RACE Setup for Long Beach

Fuel: 40,0 **Steering Lock**: 18 **Front Anti-Roll Bar**: 5 **Rear Anti-Roll Bar**: 4 **Stagger**: 0,000 **Brake Bias**: 5 **Front Wing**: 17,80 **Rear Wing**: 17,40	**Gearbox**: *1st Gear*: 11,30 *2nd Gear*: 8,80 *3rd Gear*: 7,30 *4th Gear*: 6,50 *5th Gear*: 5,70 *6th Gear*: 5,40

Right Front Tire	*Pressure*: 35 psi	*Camber*: -2,10	*Shock*: 45%	*Compound*: soft
Right Rear Tire	*Pressure*: 38 psi	*Camber*: -1,70	*Shock*: 30%	*Compound*: soft
Left Rear Tire	*Pressure*: 38 psi	*Camber*: -1,40	*Shock*: 30%	*Compound*: soft
Left Front Tire	*Pressure*: 35 psi	*Camber*: -2,10	*Shock*: 45%	*Compound*: soft

Lane's Rookie RACE Setup for Michigan

Fuel: 30,0 **Steering Lock**: 18 **Front Anti-Roll Bar**: 3 **Rear Anti-Roll Bar**: 5 **Stagger**: 0,800 **Brake Bias**: 5 **Front Wing**: 3,30 **Rear Wing**: 3,80	**Gearbox**: *1st Gear*: 10,90 *2nd Gear*: 8,10 *3rd Gear*: 6,30 *4th Gear*: 5,30 *5th Gear*: 4,70 *6th Gear*: 4,20

Right Front Tire	*Pressure*: 35 psi	*Camber*: -2,00	*Shock*: 70%	*Compound*: hard
Right Rear Tire	*Pressure*: 37 psi	*Camber*: -1,40	*Shock*: 60%	*Compound*: medium
Left Rear Tire	*Pressure*: 36 psi	*Camber*: -0,10	*Shock*: 80%	*Compound*: soft
Left Front Tire	*Pressure*: 35 psi	*Camber*: -0,90	*Shock*: 75%	*Compound*: soft

Lane's Rookie RACE Setup for Mid Ohio

Fuel: 40,0 **Steering Lock**: 18 **Front Anti-Roll Bar**: 5 **Rear Anti-Roll Bar**: 4 **Stagger**: 0,000 **Brake Bias**: 5 **Front Wing**: 17,40 **Rear Wing**: 17,60	**Gearbox**: *1st Gear*: 10,90 *2nd Gear*: 8,80 *3rd Gear*: 7,50 *4th Gear*: 6,70 *5th Gear*: 5,70 *6th Gear*: 5,40

Right Front Tire	*Pressure*: 35 psi	*Camber*: -2,10	*Shock*: 50%	*Compound*: soft
Right Rear Tire	*Pressure*: 38 psi	*Camber*: -1,70	*Shock*: 30%	*Compound*: soft
Left Rear Tire	*Pressure*: 38 psi	*Camber*: -1,40	*Shock*: 30%	*Compound*: soft
Left Front Tire	*Pressure*: 35 psi	*Camber*: -2,10	*Shock*: 50%	*Compound*: soft

Lane's Rookie RACE Setup for Milwaukee

Fuel: 40,0 **Steering Lock**: 14 **Front Anti-Roll Bar**: 7 **Rear Anti-Roll Bar**: 5 **Stagger**: 0,900 **Brake Bias**: 3 **Front Wing**: 16,80 **Rear Wing**: 18,00	**Gearbox**: *1st Gear*: 11,90 *2nd Gear*: 8,90 *3rd Gear*: 7,50 *4th Gear*: 6,70 *5th Gear*: 6,10 *6th Gear*: 5,70

Right Front Tire	*Pressure*: 34 psi	*Camber*: -1,90	*Shock*: 50%	*Compound*: hard
Right Rear Tire	*Pressure*: 33 psi	*Camber*: -1,30	*Shock*: 65%	*Compound*: medium
Left Rear Tire	*Pressure*: 36 psi	*Camber*: -0,10	*Shock*: 65%	*Compound*: soft
Left Front Tire	*Pressure*: 38 psi	*Camber*: -0,60	*Shock*: 85%	*Compound*: soft

Lane's Rookie RACE Setup for Nazareth

Fuel: 40,0 **Steering Lock**: 14 **Front Anti-Roll Bar**: 5 **Rear Anti-Roll Bar**: 5 **Stagger**: 0,900 **Brake Bias**: 5 **Front Wing**: 17,20 **Rear Wing**: 18,00	**Gearbox**: *1st Gear*: 11,90 *2nd Gear*: 8,90 *3rd Gear*: 7,50 *4th Gear*: 6,70 *5th Gear*: 6,30 *6th Gear*: 5,90

Right Front Tire	*Pressure*: 34 psi	*Camber*: -1,90	*Shock*: 45%	*Compound*: soft
Right Rear Tire	*Pressure*: 33 psi	*Camber*: -1,30	*Shock*: 60%	*Compound*: soft
Left Rear Tire	*Pressure*: 36 psi	*Camber*: -0,10	*Shock*: 55%	*Compound*: soft
Left Front Tire	*Pressure*: 38 psi	*Camber*: -0,60	*Shock*: 75%	*Compound*: soft

Lane's Rookie RACE Setup for New Hampshire

Fuel: 40,0 **Steering Lock**: 14 **Front Anti-Roll Bar**: 7 **Rear Anti-Roll Bar**: 6 **Stagger**: 0,900 **Brake Bias**: 3 **Front Wing**: 16,60 **Rear Wing**: 18,00	**Gearbox**: *1st Gear*: 11,90 *2nd Gear*: 8,90 *3rd Gear*: 7,50 *4th Gear*: 6,70 *5th Gear*: 6,10 *6th Gear*: 5,70

Right Front Tire	*Pressure*: 34 psi	*Camber*: -1,90	*Shock*: 50%	*Compound*: hard
Right Rear Tire	*Pressure*: 33 psi	*Camber*: -1,30	*Shock*: 60%	*Compound*: medium
Left Rear Tire	*Pressure*: 36 psi	*Camber*: -0,10	*Shock*: 60%	*Compound*: soft
Left Front Tire	*Pressure*: 38 psi	*Camber*: -0,60	*Shock*: 80%	*Compound*: soft

Lane's Rookie RACE Setup for Phoenix

Fuel: 40,0 **Steering Lock**: 14 **Front Anti-Roll Bar**: 5 **Rear Anti-Roll Bar**: 5 **Stagger**: 0,900 **Brake Bias**: 5 **Front Wing**: 17,40 **Rear Wing**: 17,60	**Gearbox**: *1st Gear*: 11,90 *2nd Gear*: 8,90 *3rd Gear*: 7,50 *4th Gear*: 6,70 *5th Gear*: 5,90 *6th Gear*: 5,70

Right Front Tire	*Pressure*: 34 psi	*Camber*: -1,90	*Shock*: 40%	*Compound*: soft
Right Rear Tire	*Pressure*: 33 psi	*Camber*: -1,30	*Shock*: 55%	*Compound*: soft
Left Rear Tire	*Pressure*: 36 psi	*Camber*: -0,10	*Shock*: 55%	*Compound*: soft
Left Front Tire	*Pressure*: 38 psi	*Camber*: -0,60	*Shock*: 75%	*Compound*: soft

Lane's Rookie RACE Setup for Portland

Fuel: 40,0 **Steering Lock**: 16 **Front Anti-Roll Bar**: 5 **Rear Anti-Roll Bar**: 6 **Stagger**: 0,000 **Brake Bias**: 5 **Front Wing**: 17,80 **Rear Wing**: 17,40	**Gearbox**: *1st Gear*: 10,90 *2nd Gear*: 8,80 *3rd Gear*: 7,30 *4th Gear*: 6,50 *5th Gear*: 5,70 *6th Gear*: 5,40

Right Front Tire	*Pressure*: 35 psi	*Camber*: -2,10	*Shock*: 40%	*Compound*: soft
Right Rear Tire	*Pressure*: 38 psi	*Camber*: -1,70	*Shock*: 30%	*Compound*: soft
Left Rear Tire	*Pressure*: 38 psi	*Camber*: -1,40	*Shock*: 30%	*Compound*: soft
Left Front Tire	*Pressure*: 35 psi	*Camber*: -2,10	*Shock*: 40%	*Compound*: soft

Lane's Rookie RACE Setup for Toronto

Fuel: 40,0 **Steering Lock**: 18 **Front Anti-Roll Bar**: 4 **Rear Anti-Roll Bar**: 6 **Stagger**: 0,000 **Brake Bias**: 5 **Front Wing**: 17,80 **Rear Wing**: 17,20	**Gearbox**: *1st Gear*: 11,30 *2nd Gear*: 8,80 *3rd Gear*: 7,30 *4th Gear*: 6,50 *5th Gear*: 5,70 *6th Gear*: 5,40

Right Front Tire	*Pressure*: 35 psi	*Camber*: -2,10	*Shock*: 50%	*Compound*: soft
Right Rear Tire	*Pressure*: 38 psi	*Camber*: -1,70	*Shock*: 35%	*Compound*: soft
Left Rear Tire	*Pressure*: 38 psi	*Camber*: -1,40	*Shock*: 35%	*Compound*: soft
Left Front Tire	*Pressure*: 35 psi	*Camber*: -2,10	*Shock*: 50%	*Compound*: soft

Lane's Rookie RACE Setup for Vancouver

Fuel: 40,0 **Steering Lock**: 18 **Front Anti-Roll Bar**: 5 **Rear Anti-Roll Bar**: 6 **Stagger**: 0,000 **Brake Bias**: 5 **Front Wing**: 18,00 **Rear Wing**: 18,00	**Gearbox**: *1st Gear*: 10,90 *2nd Gear*: 8,80 *3rd Gear*: 7,30 *4th Gear*: 6,50 *5th Gear*: 5,70 *6th Gear*: 5,40

Right Front Tire	*Pressure*: 35 psi	*Camber*: -2,10	*Shock*: 70%	*Compound*: soft
Right Rear Tire	*Pressure*: 38 psi	*Camber*: -1,70	*Shock*: 45%	*Compound*: soft
Left Rear Tire	*Pressure*: 38 psi	*Camber*: -1,40	*Shock*: 45%	*Compound*: soft
Left Front Tire	*Pressure*: 35 psi	*Camber*: -2,10	*Shock*: 60%	*Compound*: soft