

Thirty Minute Late Model

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I. Intro

Hello and welcome to the Thirty Minute Late Model guide. This will serve as a collection of my thoughts, processes, and lessons learned for creating sets for the iRacing Late Model (also known as the Chevrolet Monte Carlo SS). This guide is centered around an approach of no more than 30 minutes a week of set building. The end result is a competitive set without a very large time commitment. Often times, I would finish on the lead lap even when racing against the 6000+ iRating setup shop builders. Not bad for a modified iRacing baseline.

II. History

I bought the Late Model some time around 2020 Season 1 or 2 as a way to improve my short track skills and engage in exciting, close battles. I would run sets that my friends had made, or some modified version of the VRS sets. I was rarely ever excited about how any of the sets actually felt, and in some cases I thought they were absolutely terrible. Don't get me wrong - these were race winning sets, just not in my hands. I was on edge for the entire race, and so I could not get comfortable enough to ever push them hard. Thus, I was stuck in the mid-pack with no way of being faster.

When the tire model change was announced for 2020 Season 4, I decided to take a stab at setups. The change leveled the playing field somewhat, and also filled the forums with half a dozen setup shops. I figured that I would spend a bit of time each week making my own setups and offering them on the forums for free in an effort to counter some of the nonsense. My goal initially was simple: be better than the baseline. In the absolute worst case, someone now has two free options (the included baseline and my set) before they feel "forced" to spend \$10 per week on a setup.

III. Philosophy

The Late Model has over forty adjustable components that one might use in a race. This is a pretty big jump from the Rookie Ford 34c Legends car, which has a little over twenty. Still, I found the Late Model much easier and more approachable for a few reasons:

- 1) The Legends car is really unstable. I could be feeling a tad bit tight with one adjustment. Changing the cross weight one click to loosen it up then causes me to spin out on the outlap with no change in driving style. That's a rough environment to learn in.
- 2) More variety across the tracks requires different sets. Not only is the Legends schedule pretty small, but the same basic setup works almost anywhere. Late Models have about four basic track types which resulted in four drastically different setup strategies. What this ultimately meant was that I had four 'chances' to get in tune with the different tracks, rather than hoping that my one baseline set worked.
- 3) Better racing. I loved the Legends Ford 34c dearly, but my skills got to a point where the front of the pack would drive away and the back half of the pack would disappear in my mirror. So it was generally 40 laps of racing around nobody. I had the same experiences in Late Models from time to time, but so many more races where someone would catch me late in the run (or vice versa) and we'd have some good battles to the finish.

When I first started on iRacing, I basically jumped straight into the NASCAR Cup car with no understanding of setups or race car dynamics. I was looking at telemetry traces in order to "seal the splitter" and having basically zero decision making process. It was an absolute waste of time, and I often made sets that were slower AND drove worse than the iRacing baselines. I moved back to Rookie Legends at some point to learn the basics, and then onto Late Model once I realized the benefits that I just described. But I had generally always been tweaking a good set that was already made available to me, rather than overhauling a "bad" set to make it better / faster. My journey into publishing the free sets was centered around this idea of overhauling the baselines, and so I needed a way to initially approach the building process.

I am a software engineer by trade, and one of the central concepts is known as **abstraction** - the definition being "the process of removing physical, spatial, or temporal details or attributes in the study of objects or systems to focus attention on details of greater importance." I decided to apply this concept to my setup building process, without any idea about whether or not it would even actually work. Specifically, what I mean by this is that I picked a number of setup components to tweak, and I ignored the rest. As I said, there are about 40 in total on the Late Model. For my approach, I cut that down to 18 things to adjust. And a couple of those I call "Set and Forget", meaning I set them based on the track and I don't tinker with them any further.

FRONT:

Cross weight: 49.5%

LEFT FRONT:

Corner weight: 889 lbs
 Ride height: 3.57 in
 Spring perch offset:
 Spring rate:

RIGHT FRONT:

Corner weight: 711 lbs
 Ride height: 4.07 in
 Spring perch offset:
 Spring rate:

LEFT REAR:

Corner weight: 836 lbs
 Ride height: 4.38 in
 Spring perch offset:
 Spring rate:

RIGHT REAR:

Corner weight: 689 lbs
 Ride height: 4.88 in
 Spring perch offset:
 Spring rate:

Track bar height: Track bar height:

REAR:

Fuel Fill To:
 Rear end ratio: ☒ 5.25

The Abstracted Late Model

Also, all six adjustments on the tire screen are used

This results in a very focused approach that does not require a significant amount of time, energy, or knowledge. It kept me from going to meaningless rabbit holes (like in my Cup experiences) and to focus on getting the most out of the car in the shortest amount of time possible.

It is important to understand what I am saying, however. If you want to win top split against 5000+ iRating drivers, you will likely need to adjust every single item on the car AND have the skill to wheel it. But that will also take you much longer than 30 minutes a week to tune the car. This approach is good as either a learning stepping stone to more advanced adjustments, or a time-crunched individual who wants a car that fits them better. There is no magic button where you can spend zero time to come out with the best and fastest set in an open setup series. But you can minimize the amount of time you waste with mindless clicking and come out with a strong, competitive entry.

IV. Misconceptions

To be added later.

V. Set-And-Forget

A. Tire Pressures*

I always start the tire pressures at minimum. This is the first thing I do. I added an asterisk because it is not a true “set and forget” because it is also the very last adjustment I will make as I am finalizing the race set. More on that later. But for now, set them to minimums.

B. Stagger

When I started, I would use Stagger adjustments to help with entry/exit feel. At some point, someone pointed me in the direction of the iRacing Stagger Chart hosted at OS Racing. The link is here: <https://osracing.net/iracing-setup-stagger-chart/> 99% of the time for the Late Model, I will run the Stagger values listed on this table without question, on both front and rear. There is a way to calculate the stagger for tracks that aren't on the table (Nashville Fairgrounds, North Wilkesboro) or you can just find a similar size/shape/banking and experiment.

C. Brake Bias*

Another asterisk, because we'll adjust this later and also during the race. I recommend setting this value somewhere between 54% - 56% before you start tuning the rest of the car. More details down below in the “In-Car Adjustment” section. But overall, I never use this to change how the car feels during the setup process.

D. Fuel

Most races need 7 gallons or less. If you have a fuel calculator, you can determine exactly how much you need. I would generally find the average use from my initial baseline runs (½ race distance) and then calculate from there. But keep this in mind: if you are close, just add an extra gallon. If the race needs 6.2 gallons, just run 7. It is NEVER worth the risk in my opinion. If you don't want to waste time by figuring out the average use per lap at the beginning, just set it to 7 gallons and then fine tune it after you finish the race set.

E. Gearing

Usually, iRacing baseline was good enough. Sometimes I lengthened it a bit (a lower number). But out of all the things on the car, I usually gave it the least amount of time and mental effort.

VI. Race Set

To be added later.

VII. Qualifying Set

A. Philosophy

Before we get to working on making a fast qualifying set, we have to first think about the approach we want to take in regards to our qualifying effort. No approach is definitely better than another, as they all have their trade offs. But here, I will talk about my philosophy and why I think it's the best option for me and my goals.

If you watch NASCAR on Sundays, you'll see that qualifying is a HUGE deal, especially at the 1.5 miles where passing is basically impossible. In Late Models, I would say that track position is important but for different factors, and also different implications.

Lately, top splits aren't as stacked as they once were. Being a few tenths off the leader can still land you a top 5 most of the time. Being a few tenths off of a top 5 will still generally put you in the top 10 from what I have seen. Therefore, I would say that Q pace is important, but not absolutely critical.

Starting 7th is not much worse than starting 5th, especially at single groove tracks where the outside gets absolutely gutted if they cannot move down. However, starting further in the back has the additional downside of being around drivers with no car control. They may wreck on the pacing laps, and you could end up being forced to take a fast repair.

With the else factors considered, I've made the determination that the most important factor for me is starting mid-pack at worst, and to aim for a top-3. Even the times that I've landed a pole, I will be outrun on long runs by the setup shops. So, ultimately, its not a critical goal for me to have the fastest Q, because of the considerations I'll discuss in the next section.

B. Requirements

My requirements are that I want a solid qualifying effort that easily puts me in the front of the pack. I may get a few laps to test it in actual conditions during the pre-race practice, but sometimes not. Thus, I aim for a feel that should be robust across a variety of temperatures.

If I set up the Q trim and it's unstable in a no-stake single car practice session, it will undoubtedly be harder to drive during actual qualifying when there is something on the line. I generally run slower times in the real deal than in solo practice, especially since there are no restarts.

Putting all of that together: I need a car that I can hop into with little to no recent practice, and spit out a decent lap time generally on the first lap. That means no self spins, no hitting the wall, and no slides to catch. And generally have only two corners (3+4) to adjust the brake bias as needed. I don't care if the balance is gone by lap 2 as long as I have a very solid feeling lap 1 car.

C. Setup Changes

VIII. In-Car Adjustments

Once you are in the race, the only tool you have at your disposal is the Brake Bias. I cannot tell you how long I neglected this adjustment, and it definitely hurt my development as a driver. The brake bias is responsible for the car's handling under braking during corner entry. Since the Late Model brakes at EVERY SINGLE TRACK, using this adjustment is CRITICAL!

You can adjust this value in both the car and garage between 50% to 60%.

Higher value: Tighter entry while under braking

Lower value: Looser entry while under braking

In a vast majority of situations, I would lower my brake bias to loosen my car as it built tight. Generally one or two clicks at a time as I began to feel a shift towards tightness, and perhaps only going 3-4% over the course of the entire race. That means I might start somewhere around 54.5%, and finish the race around 51%. There are no "magic values" for these numbers, as it is all going to depend on your setup, your driving style, and what you need throughout the race.

There are two definitives however:

- 1) Bind this adjustment to your wheel somewhere (both up and down)
- 2) Make sure you start the race with enough brake bias to adjust in both directions. I recommend somewhere around 55%.

At some point in your life, you will set up the absolutely perfect car only to realize that your brake bias is sitting at 50%. If you take it out on the track and it builds tight around lap 40, you'll be miserable for the last stretch with no tools to adjust your comfort. When this happens, you'll need to raise it up a bit and then tune the car back to how you'd like. That can be difficult. Therefore, I say it is very important to start it with some buffer.

I suggest having options in both directions for this simple reason: it can be a good idea to bump it up (tighten up entry) during the early laps, especially on a hot track. I see a lot of people lose the car on entry of turn 1 on lap 1. Avoid the embarrassment by going a click or two up on the brake bias. Of course the simple suggestion would be “just start it to where it should be anyway” - and I try to live by that. But many times, I still find myself wanting a bit more based on how the track feels on the pace laps.

Using it through the course of the race might look something like this:

Pacing - Lap 5	~55% to ~56%
Lap 5 to Lap 15	~54%
Lap 15 to Lap 30	~53%
Lap 30 to Lap 40	~51.5% to ~52%
Lap 40 to Lap 50	~50% to ~51%

But always one click at a time, and always give it a few turns to really get an idea if you need more (or if you want to increase it back)! Don't use the above table as a guide, but rather as an idea of how to approach the adjustment. Have no fear, get out there and play around on a race-length run.

IX. Weather

To be added later.

X. Helpful Applications

iRacing Setup Viewer - very helpful for comparing multiple different setups and seeing exactly what differences (or similarities) a group of setups share. I used this often when starting out, especially when trying to get a feel for commonalities between setups.

Find it for free here: <http://mysimracingapps.ratbrat.net/>

XI. Acknowledgements

There have been tons of people who have helped me along the way. Here's a list of most of them, though I'm sure I'm missing somebody here...

Dan K - posted great, free legends sets

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