



iRacing



MYRTLE BEACH



LATE MODEL STOCK

USER MANUAL



Table of Contents

CLICK TO VIEW A SECTION

GENERAL INFORMATION	
A Message From iRacing »	3
Tech Specs »	4
Introduction »	5
Getting Started »	5
Loading An iRacing Setup »	6
Dash Pages »	7
ADVANCED SETUP OPTIONS	
Tires »	9
Chassis »	11
Front »	11
Front ARB »	13
Front Corners »	14
Rear Corners »	17
Rear »	20



Dear iRacing User,

Used in series like the CARS Late Model Stock Tour and throughout the Carolinas, the Late Model Stock Car is an important step in the career of many of stock car racing's top stars. The names that have progressed through the series on the way to national-level glory range from current NASCAR Xfinity Series front-runners like Josh Berry, Sam Mayer, and Myatt Snider to NASCAR Craftsman Truck Series drivers like Hailie Deegan and Christian Eckes and even 2023 NASCAR Cup Series rookie Ty Gibbs.

The Late Model Stock Car is powered by a 350 cubic inch engine—both crate and custom engines are available—that produces well over 400 horsepower. Fiberglass body panels help keep the car on the lighter side, but are still durable enough to take on the full-contact nature of short track racing. LMSC racing puts on some of the best shows in short track racing anywhere it goes, and the CARS Tour takes them to many of iRacing's most popular short tracks, including Southern National Motorsports Park, Hickory Motor Speedway, Langley Speedway, South Boston Speedway, and North Wilkesboro Speedway.

Thanks again for your purchase, and we'll see you on the track!



CHASSIS

INDEPENDENT COILOVER FRONT
SUSPENSION, LIVE AXLE TRUCK ARM REAR
SUSPENSION WITH COILOVERS



LENGTH
5054 mm
199 in

WIDTH
1638 mm
64.5 in

WHEELBASE
2667 mm
105 in

DRY WEIGHT
6173 kg
2800 lbs

WET WEIGHT
WITH DRIVER
6834 kg
3100 lbs

POWERTRAIN



NATURALLY ASPIRATED STEEL BLOCK CRATE V8

DISPLACEMENT
5.7 Liters
350 cid

TORQUE
450 lb-ft
610 Nm

POWER
500 bhp
373 kW

RPM LIMIT
7,200



Introduction

The information found in this guide is intended to provide a deeper understanding of the chassis setup adjustments available in the garage, so that you may use the garage to tune the chassis setup to your preference.

Before diving into chassis adjustments, though, it is best to become familiar with the car and track. To that end, we have provided setups for each track commonly raced by these cars. To access the provided setups, simply open the Garage, click iRacing Setups, and select the appropriate setup for your track of choice. If you are driving a track for which a dedicated setup is not included, you may select a setup for a similar track to use as your baseline. After you have selected an appropriate setup, get on track and focus on making smooth and consistent laps, identifying the proper racing line and experiencing tire wear and handling trends over a number of laps.

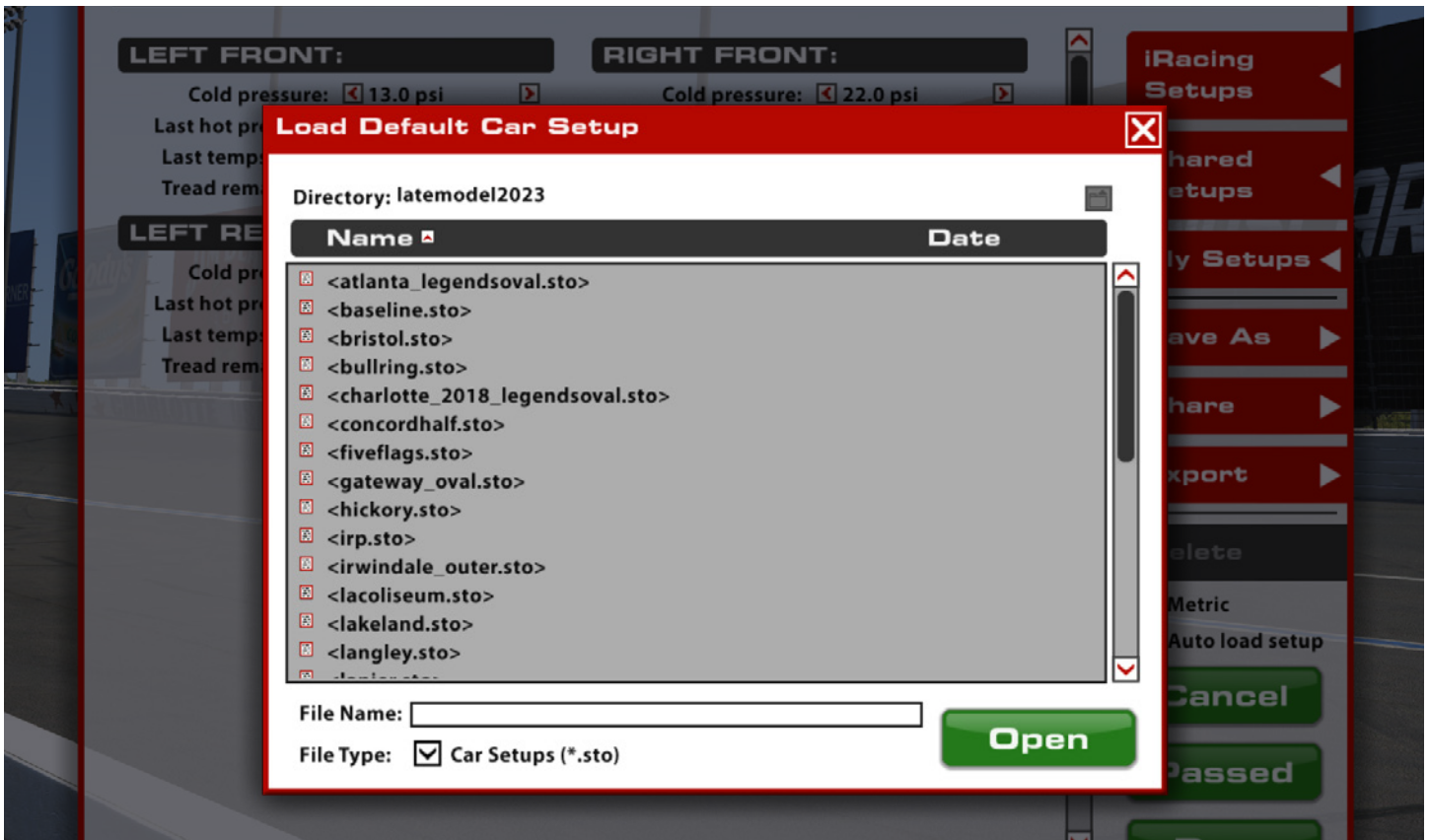
Once you are confident that you are nearing your driving potential with the included baseline setups, read on to begin tuning the car to your handling preferences.

GETTING STARTED



Once you load into the car, press the clutch and select 1st gear. While applying the throttle, slowly release the clutch and the car will begin rolling. Once the car is moving, the clutch is no longer needed to shift gears, with upshifting requiring a quick lift off the throttle and downshifting requiring a small blip of throttle. Since the car lacks a tachometer display, it's important for the driver to become accustomed to how the engine sounds and shift just prior to the rev limiter engaging.

LOADING AN iRACING SETUP



Upon loading into a session, the car will automatically load the iRacing Baseline setup [baseline.sto]. If you would prefer one of iRacing's pre-built setups that suit various conditions, you may load it by clicking Garage > iRacing Setups > and then selecting the setup to suit your needs.

If you would like to customize the setup, simply make the changes in the garage that you would like to update and click apply. If you would like to save your setup for future use click "Save As" on the right to name and save the changes.

To access all of your personally saved setups, click "My Setups" on the right side of the garage.

If you would like to share a setup with another driver or everyone in a session, you can select "Share" on the right side of the garage to do so.

If a driver is trying to share a setup with you, you will find it under "Shared Setups" on the right side of the garage as well.

Dash Configuration

The iRacing Late Model Stock Car features only two gauges to display vital engine information to the driver. Situated behind the steering wheel, these gauges are configured to change from a white illumination to a flashing red when the indicated value reaches a level that could lead to an engine failure.



OIL PRESSURE

The left gauge displays the engine oil pressure in Pounds per Square Inch. This gauge does not change units when the garage is set to Metric.

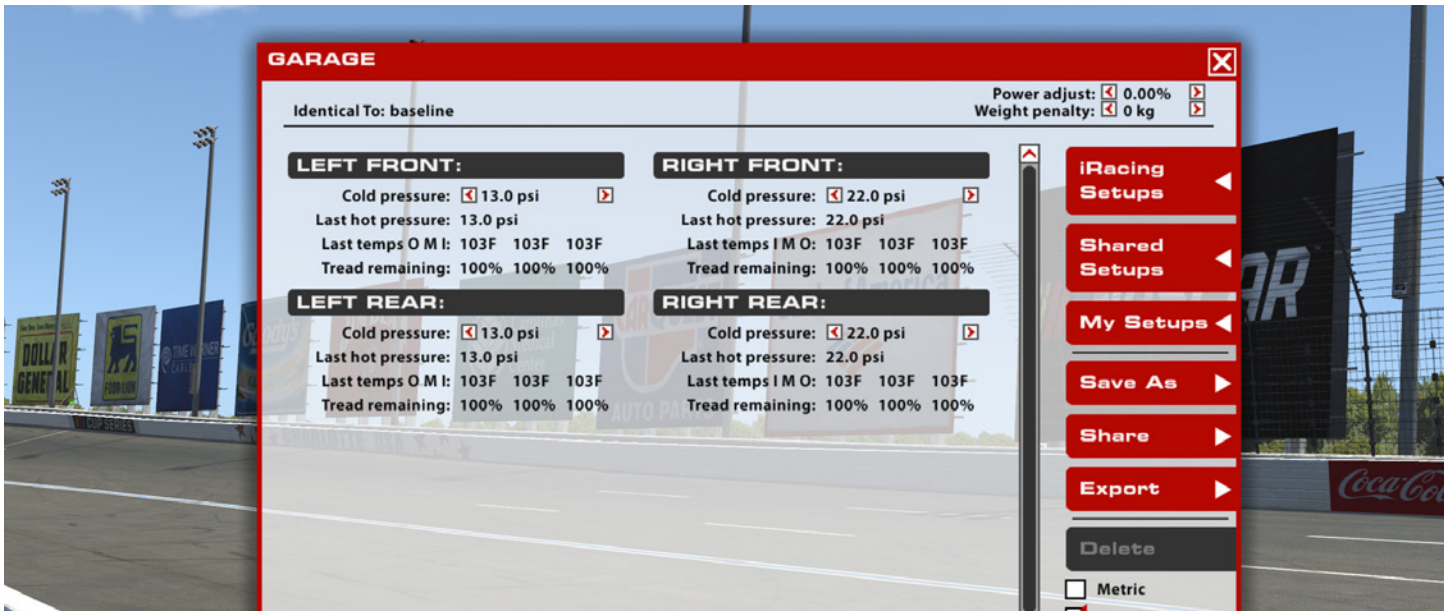
WATER TEMP

The right gauge displays the engine cooling water temperature in Degrees Fahrenheit. This gauge does not change units when the garage is set to Metric.

Advanced Setup Options

This section is aimed toward more advanced users who want to dive deeper into the different aspects of the vehicle's setup. Making adjustments to the following parameters is not required and can lead to significant changes in the way a vehicle handles. It is recommended that any adjustments are made in an incremental fashion and only singular variables are adjusted before testing changes.

Tires



COLD AIR PRESSURE

Air pressure in the tire when the car is loaded into the world. Higher pressures will reduce rolling drag and heat buildup, but will decrease grip. Lower pressures will increase rolling drag and heat buildup, but will increase grip. Higher speeds and loads will require higher pressures, while lower speeds and loads will see better performance from lower pressures. Excessively low cold pressures at high-speed tracks can lead to a lack of traction and excessive tire heat. Cold pressures should be set to track characteristics for optimum performance.

HOT AIR PRESSURE

Air pressure in the tire after the car has returned to the pits. The difference between Cold and Hot pressures can be used to identify how the car is progressing through a run in terms of balance, with heavier-loaded tires seeing a larger difference between Cold and Hot pressures. Ideally, tires that are worked in a similar way should build pressure at the same rate to prevent a change in handling balance over the life of the tire, so Cold pressures should be adjusted to ensure that similar tires are at similar pressures once up to operating temperature.

TIRE TEMPERATURES (LAST TEMPS O.M.I.)

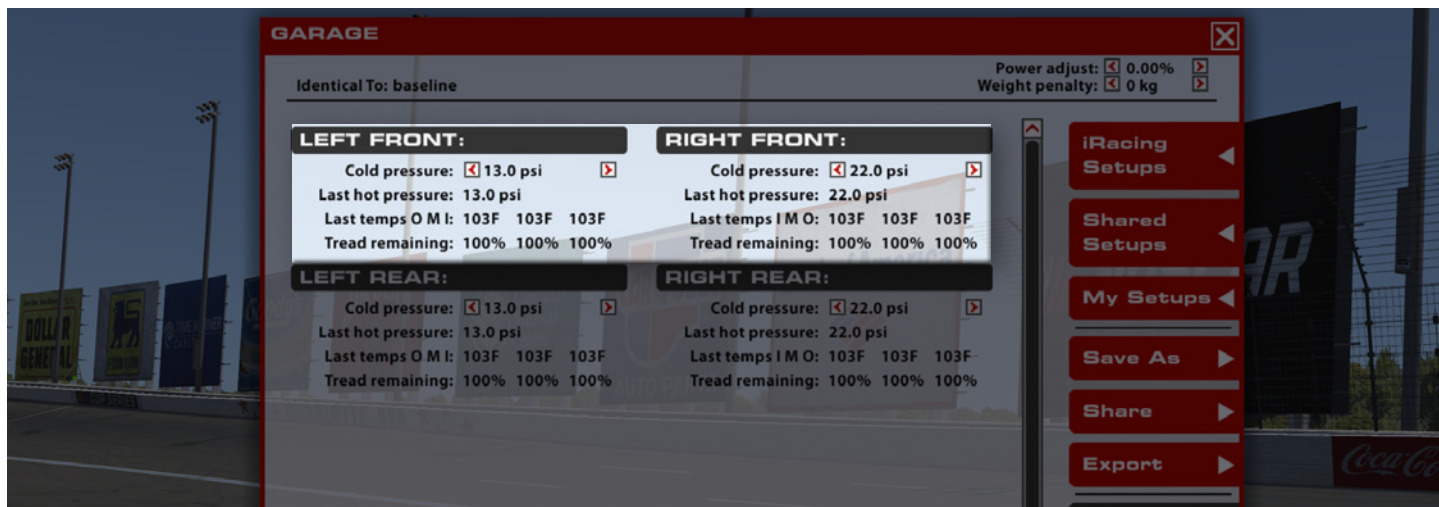
Tire carcass temperatures once the car has returned from the pits. Wheel loads and the amount of work a tire is doing on-track is reflected in the tire's temperature, and these values can be used to analyze the car's handling balance. Center temperatures are useful for directly comparing the work done by each tire, while the Inner and Outer temperatures are useful for analyzing the wheel alignment while on track. These values are measured in three zones across the tread of the tire. Ideally, the temperature spread across a tire will reflect the amount of camber (for ovals, the left side of the tire should always read hotter) and should never read even across the tire tread. Tracks with longer straights should read hotter on the left-side edges because of the extra time spent on the tire edges, while tracks with shorter straights will read more even across the tread.

TIRE WEAR (TREAD REMAINING)

The amount of tread remaining on the tire once the car has returned from the pits. Tire wear is very helpful in identifying any possible issues with alignment, such as one side of the tire wearing excessively, but should never be prioritized over tire temperatures when analyzing handling balance. These values are measured in three zones across the tread of the tire

Chassis

FRONT



BALLAST FORWARD

In order to meet minimum legal competition weights, lead blocks are installed within the chassis frame rails that can be moved to various locations in the car. This adjustment directly affects the Nose Weight setting (see below) and will have a large effect on the car's overall handling balance, especially at high-speeds on larger tracks.

NOSE WEIGHT

The Nose Weight setting shows the percentage of the car's weight is situated over the front axle, with higher values indicating more weight is on the front axle relative to the rear axle. As Nose Weight increases and weight is moved forward the car will tend to understeer while cornering and lose front-end grip, while lower Nose Weight values will induce oversteer and can cause a loss in rear-end grip. At high speed tracks this value is used to balance overall aerodynamic balance, so a change in chassis rake may require an adjustment in the car's nose weight to re-balance the chassis with the aero. This value can be adjusted directly via the Ballast Forward option, but will also be affected by the amount of fuel in the car. It is very important to be aware of Nose Weight changes when adding or removing fuel to avoid a handling issue due to changing Nose Weight.

CROSS WEIGHT

Cross Weight is the percentage of the car's total weight that is situated on the Left-Rear and Right-Front wheels. Higher values will place more weight on these wheels and induce understeer while cornering, lower values will shift weight to the Left-Front/Right-Rear wheels and induce oversteer. Cross Weight is used for a multitude of reasons, most important being a way to control the handling in various sections of the corner. This value should be set initially to match track characteristics, with higher values being used for low-grip track surfaces or tracks with lower banking. This will increase the weight on the Left-Rear tire and increase on-throttle traction, very helpful on this type of track. For tracks that are high banked or have a high-grip surface this extra traction isn't necessary, so reducing the crossweight will keep the car free through the center of the corner without scrubbing speed.

STEERING RATIO

The Steering Ratio will alter how “fast” the steering feels to the driver. This ratio is a representation of how much movement is applied to the steering box input shaft to produce a standard amount of movement on the steering box output shaft. For example, a “10:1” can be thought of as requiring 10° of steering input from the driver to produce 1° of steering output from the steering box. Increasing the value to 14:1 would require 14° of steering input to get the same output, and this would feel as if the steering has become slower and less responsive. Conversely, reducing the ratio will make the steering feel faster and more darty for the driver. This is purely a driver preference setting and has no effect on the rest of the chassis setup or its handling characteristics.

STEERING OFFSET

Due to the asymmetric nature of the Late Model Stock Car, the steering can often have a “pull” to the left on the straights. To counter this effect and re-center the steering wheel, an offset can be applied in the garage. Positive values will rotate the steering wheel to the right and negative values will rotate the steering wheel to the left. This offset will not affect the steering or the chassis in any way other than the steering wheel’s orientation at neutral steering input.

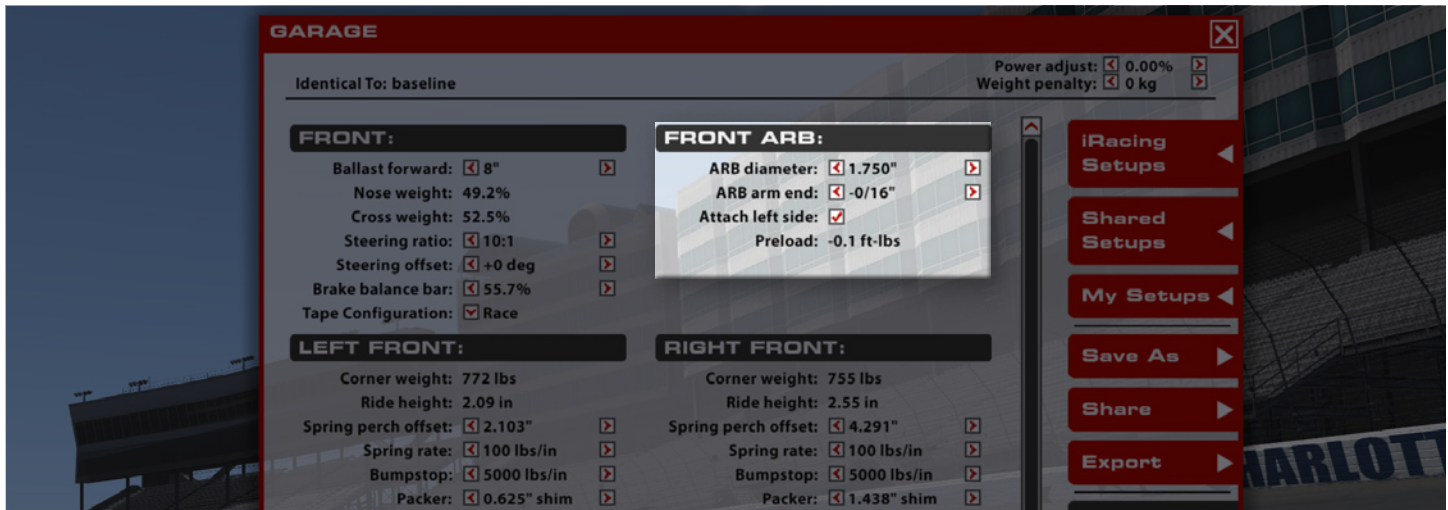
BRAKE BALANCE BAR

The Brake Balance Bar setting controls the Brake Bias value, or the amount of braking force split between the front and rear braking systems. The value is a percentage of front braking force, and values over 50% and higher represent more pressure being sent to the front brakes. Lower values will shift the pressure towards the rear, with values under 50% sending more to the rear brakes than the front. This can be a helpful tool in preventing wheel lockups under heavy braking by shifting pressure away from the locking axle, but can also be used as a way to slightly alter the car’s handling under heavy braking. Generally, a higher Brake Bias value will induce understeer while braking while lower values will induce oversteer while braking.

TAPE CONFIGURATION

The front radiator grille can be set to either “Race”, an open configuration, or “Qual”, where tape is applied over the grille opening to reduce drag and increase overall downforce. The Qual setting will close the radiator inlet completely, leading to the engine overheating very quickly, but is very good for qualifying runs where the car is on track for only a handful of laps. While both settings are available for most sessions, the Qual setting is locked out for Race sessions.

FRONT ARB



ARB DIAMETER

The front Anti-Roll Bar (ARB, or “sway” bar) diameter will alter the front suspension's roll stiffness and influence the chassis' handling and responsiveness. Larger diameters will increase the roll stiffness and reduce body roll, but can induce understeer and potentially hurt front tire life. Smaller diameter ARB settings will reduce roll stiffness and increase body roll, but are better on the front tires and can make them last longer. Generally, the smallest ARB diameter that still keeps the front of the car flat to the race track will yield the best results.

ARB ARM END

The ARB Arm End setting changes the length of the left side ARB linkage. This can be used to either pre-load the ARB (see below) or cause a delay in the ARB's engagement. Negative values will pre-load the ARB and apply a static load to the bar when the car is sitting still, which will pull the Left-Front of the chassis down and raise the Right-Front of the chassis. Positive values will apply a pre-load in the other direction, pulling the Right-Front down and the Left-Front up.

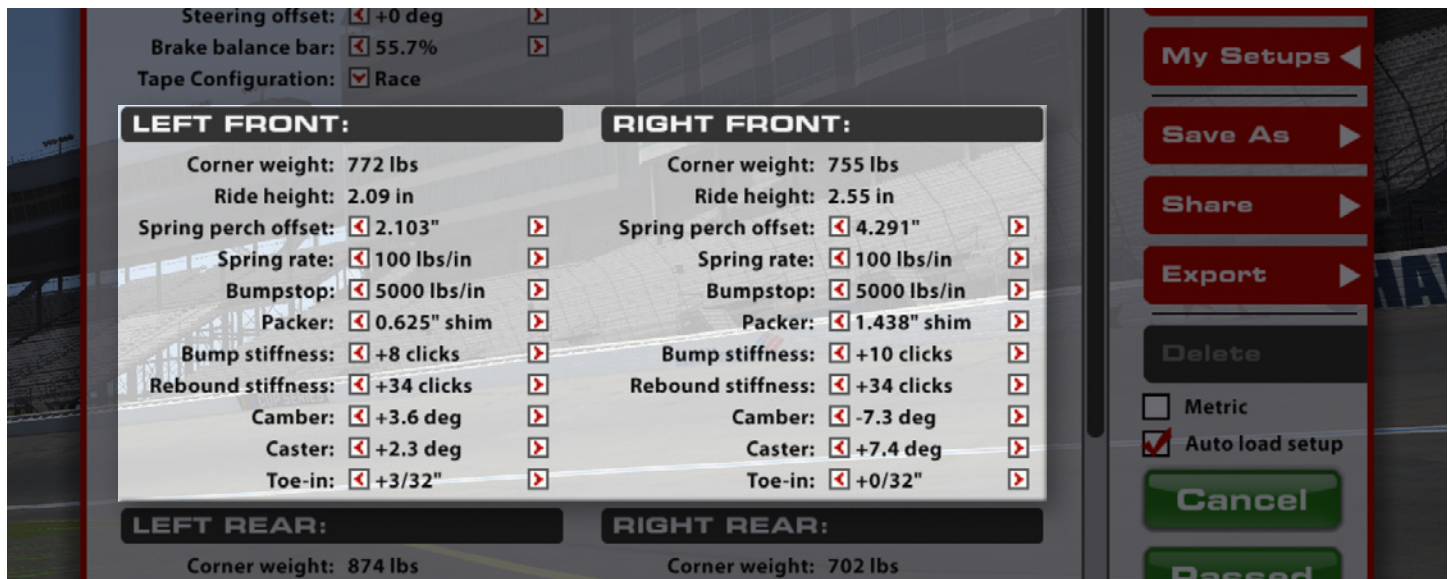
ATTACH LEFT SIDE

The Attach Left Side setting controls whether the left side of the ARB assembly is connected directly to the suspension. Checking this box will attach a solid linkage between the left-side ARB arm and the Left-Front suspension, unchecking this box will allow the bar to move independently of the suspension and preventing positive pre-load values (commonly known as a “slapper”-type sway bar). See the ARB Arm End section for more on the effects of a detached ARB linkage and how it can be used. If the Attach Left Side setting is left unchecked, positive preload values will cause the bar to delay engagement until the front of the car drops from aerodynamic and track loads. This is very helpful when the car is set up with ride heights above where the car will be run on-track, since it prevents vertical travel from loading the ARB and causing the bar to try and lift the nose back up on the straights when cornering loads are removed.

PRELOAD

ARB Preload is a static twisting force applied to the front ARB when the car is stationary. Bar Preload's effect is explained in the ARB Arm End setting, but this value is a numerical representation of the amount of load the bar is seeing while in the garage. Tech inspection limits exist on the maximum or minimum preload that can be applied to the bar and will indicate when the bar is in an illegal configuration.

FRONT CORNERS



CORNER WEIGHT

The Corner Weight displays the weight situated on each wheel when the car is stopped and in the garage. These values are crucial in determining how the car will handle as well as providing insight on which adjustments could be needed to alleviate handling issues. Corner Weights are not directly adjustable, but instead are dependent on almost every other option in the garage so it is very important to pay attention to these values when making adjustments. Changing a component without ensuring the weights return to what they were prior to the adjustment can introduce unexpected or undesired handling effects.

RIDE HEIGHT

The Ride Height values are a measurement from the ground to a specific point on the chassis. On the front end of the Late Model Stock these values measure to the lower surface on the front end of the chassis' lower door frame rails, just behind the front wheels. Since various parts of the chassis extend below these points, the Ride Height values are not a representation of the car's ground clearance, but instead are to be used as a reference height for setup changes.

SPRING PERCH OFFSET

The upper spring perches can be moved up or down to adjust the suspension spring preloads, with their position represented as the Spring Perch Offset value in the garage. Lower values will move the perch down and place more load on the spring, which raises the ride height on that corner of the car and increases the corner weight. When adjusted individually these can be used to fine-tune the weight of a given corner, but when adjusted equally on multiple corners this will shift weight around the car without significantly altering the ride heights.

SPRING RATE

Spring Rate is the stiffness value of the suspension's coil spring shown in a force-per-displacement value, either pounds-per-inch (lb/in) or Newtons-per-millimeter (N/mm). Higher values are stiffer springs which will resist compression more as loads increase, resulting in a more consistent aerodynamic platform but reduced mechanical grip. On the front of the Late Model Stock Car, the front springs are not always intended to be used as the primary load-carrying springs and should be kept fairly soft in order to drop the nose of the car when on the track. Despite this, altering the front Spring Rate can be used to fine-tune how aggressively the bumpstops are engaged, with stiffer springs resulting in a more gradual transition onto the bumpstops as the suspension compresses. Also, tracks with high vertical loads can benefit from stiffer front spring rates, especially on the Right-Front corner.

BUMPSTOP

The Bumpstops are secondary front springs installed on the shock shaft that are active only when the front shocks have compressed far enough that the shock body and the bumpstop are in contact. On the iRacing Late Model Stock Car, the bumpstops are linear-rate bump springs, much like the main springs. These bump springs typically carry the high loads seen while the car is on the track and are a much higher spring rate due to the low amount of travel available. Higher bumpstop spring rate values will maintain a more consistent front end height above the track through changing loads, but can reduce mechanical grip due to excessive bouncing of the front tires. Softer bumpstop spring rates will increase mechanical grip, but may allow too much vertical front end movement and risk the chassis striking the track surface and unloading the front tires.

PACKER

Packers are small shims installed on top of the Bumpstops to reduce the gap between the bumpstop and the bottom of the shock body. These can be added or removed to fine-tune when the bumpstops engage, or can be used to change the front end ride heights when the car is in the corners. Adding packers will engage the bumpstops earlier in travel and raise the nose of the car, while removing packers will lower the nose. Adding more packers to one front corner and not the other corner ("splitting" the packers) can be used to alter dynamic loads and front ARB loads through the corner. If packers are added to the Right-Front corner, weight will shift to that corner sooner on corner entry and stabilize the car. However, front bar load will increase and may cause the left-front to run higher down the straights. Conversely, adding packers to the Left-Front only can loosen the car on corner entry and can reduce bar load.

BUMP STIFFNESS

The front Bump Stiffness setting changes how stiff the front shock is in compression. Higher click values produce a stiffer shock, lower values produce a softer shock. This setting only affects the chassis handling during suspension travel and not through the center of the corner when the car has settled into the corner. Increasing the front Bump Stiffness setting will tighten the car under braking and on corner entry, while decreasing the front Bump Stiffness will loosen the car in these situations.

REBOUND STIFFNESS

The front Rebound Stiffness setting changes how stiff the front shocks are in rebound, or when the suspension is extending. This is most commonly seen on throttle application and corner exit, but can also occur in the corners over bumps. Increasing the front rebound setting will hold the front of the car down better than lower settings, but can promote understeer on corner exit. Also, if a track is very bumpy a higher rebound setting can reduce front grip by not allowing the suspension to move and keep the tire in contact with the track. Adjusted individually, front rebound can also alter the chassis balance on corner exit: Increasing Left-Front rebound will increase traction and understeer, while increasing Right-Front rebound will free up the chassis on corner exit.

CAMBER

Camber is the vertical angle of the wheel relative to the center of the chassis. Negative camber is when the top of the wheel is closer to the chassis centerline than the bottom of the wheel, positive camber is when the top of the tire is farther out than the bottom. Greater camber angles will increase the cornering force generated by the tire, but will reduce the amount of longitudinal grip the tire will have under braking. Excessive camber values can produce very high cornering forces but will also significantly reduce tire life, so it is important to find a balance between life and performance. For ovals, set the left side positive and the right side negative. For road courses, all four wheels should be set with negative camber.

CASTER

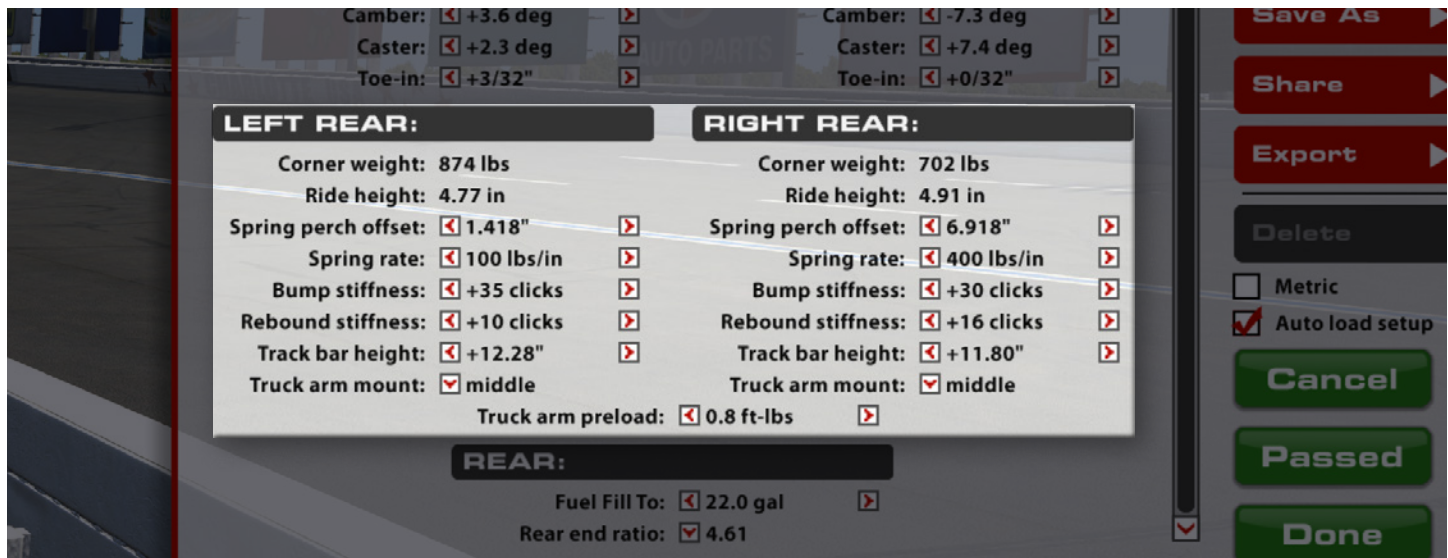
How much the steering axis is leaned back (positive) or forward (negative), which influences dynamic load jacking effects as the car is steered. More positive caster results in a heavier steering feel but decreases dynamic crossweight while turning, as well as adding straight-line stability. Running less caster on the left-front than on the right-front will cause the car to pull harder to the left and enter the corner more aggressively.

TOE-IN

Toe is the angle of the wheel, when viewed from above, relative to the centerline of the chassis. Positive toe-in is when the front of the wheel is closer to the centerline than the rear of the wheel, and negative toe-in (toe-out) is when the front of the wheel is farther away from the centerline than the rear of the wheel. Front toe-in effects must be considered for each wheel individually as well as an overall toe setting for the front wheels together by adding the values together.

If the net toe-in setting results in a toe-in setting that is negative, the wheels are aligned to point away from each other (toe-out). This will result in a more aggressive turn-in response, but it can cause the front tires to heat up faster and potentially overheat if too much front toe-out is used, as well as causing the car to be unstable in a straight line for high toe-out values. If the net setting is positive, the wheels are aligned to point towards each other (toe-in). This will reduce heat buildup in the front tires, but can stabilize the car in a straight line.

REAR CORNERS



CORNER WEIGHT

The Corner Weight displays the weight situated on each wheel when the car is stopped and in the garage. These values are crucial in determining how the car will handle as well as providing insight on which adjustments could be needed to alleviate handling issues. Corner Weights are not directly adjustable, but instead are dependent on almost every other option in the garage so it is very important to pay attention to these values when making adjustments. Changing a component without ensuring the weights return to what they were prior to the adjustment can introduce unexpected or undesired handling effects.

RIDE HEIGHT

The Ride Height values are a measurement from the ground to a specific point on the chassis. On the rear end of the Late Model Stock these values measure to the lower surface on the rear end of the chassis' lower door frame rails, just ahead of the rear wheels. Since various parts of the chassis extend below these points, the Ride Height values are not a representation of the car's ground clearance, but instead are to be used as a reference height for setup changes.

SPRING PERCH OFFSET

The upper spring perches can be moved up or down to adjust the suspension spring preloads, with their position represented as the Spring Perch Offset value in the garage. Lower values will move the perch down and place more load on the spring, which raises the ride height on that corner of the car and increases the corner weight. When adjusted individually these can be used to fine-tune the weight of a given corner, but when adjusted equally on multiple corners this will shift weight around the car without significantly altering the ride heights.

SPRING RATE

Spring Rate is the stiffness value of the suspension's coil spring shown in a force-per-displacement value, either pounds-per-inch (lb/in) or Newtons-per-millimeter (N/mm). Higher values are stiffer springs which will resist compression more as loads increase, resulting in a more consistent aerodynamic platform but reduced mechanical grip. Generally the Right-Rear spring will be run stiffer than the Left-Rear to compensate for the lack of a rear ARB. A softer Left-Rear spring rate will also help to lower the Left-Front of the car, reducing the need for large diameter front ARB and/or high front bar loads.

BUMP STIFFNESS

The rear Bump Stiffness setting changes how stiff the rear shock is in compression. Higher click values produce a stiffer shock, lower values produce a softer shock. This setting only affects the chassis handling during suspension travel and not through the center of the corner when the car has settled into the corner. Increasing the rear Bump Stiffness setting will tighten the car under acceleration and on corner exit, while decreasing the rear Bump Stiffness will loosen the car in these situations.

REBOUND STIFFNESS

The rear Rebound Stiffness setting changes how stiff the rear shocks are in rebound, or when the suspension is extending. This is most commonly seen when braking and during corner entry, but can also occur in the corners over large bumps. Increasing the rear rebound setting will hold the rear of the car in place better than lower settings, but can promote oversteer on corner entry if the settings are too high. Also, if a track is very bumpy a higher rebound setting can reduce rear grip by not allowing the suspension to move and keep the tire in contact with the track. Adjusted individually, rear rebound can also alter the chassis balance on corner entry: Increasing Right-Rear rebound will increase understeer, while increasing Left-Rear rebound will free up the chassis on corner entry.

TRACK BAR HEIGHT

The Track Bar is a solid steel rod mounted to the rear axle housing on the left side and to the chassis frame on the right side to hold the rear axle assembly in place. The track bar's left- and right-side mounts can be raised or lowered to alter both the dynamic loading on the rear tires as well as change the rear suspension's roll stiffness, with both effects having a large effect on handling characteristics. Raising the overall height of the track bar (equal adjustment on both ends of the bar in the same direction, e.g. 1" up on both ends) will increase the roll stiffness of the rear suspension and free up the chassis through all phases of cornering. Lowering the track bar on both ends will reduce the rear roll stiffness and tighten the chassis while cornering. Since this type of adjustment alters rear roll stiffness it can have a large effect on the chassis's roll attitude, so it's important to keep this in mind while making adjustments.

Adjusting the two ends individually will shift loads from one rear tire to the other as the chassis loads. Raising one end of the track bar will essentially reduce the grip on its associated tire and affect handling at specific portions of the corner. Raising the right-side track bar mount will reduce Right-Rear grip, freeing up the chassis during the transition from center to corner exit, and is a good adjustment for a "tight-center, loose-off" condition. Raising the left-side track bar mount will help the car rotate into the center of the corner. Conversely, lowering one of the mounts will do the opposite and increase grip on its associated tire.

The iRacing Late Model Stock is the first oval car to feature a "live" track bar mount in the garage. Previous cars display fixed track bar mount heights based on tech inspection heights, which causes the right-side track bar mount to load into the world differently based on where the Right-Rear height is set. On the Late Model Stock Car, the track bar mount values represent where the track bar will be when the car is loaded into the world and are linked directly to Right-Rear Ride Height, changing in the garage as adjustments are made to other chassis settings. In order to prevent unintentional changes during adjustment, it is extremely important to pay attention to the Track Bar mount heights and reset them as necessary!

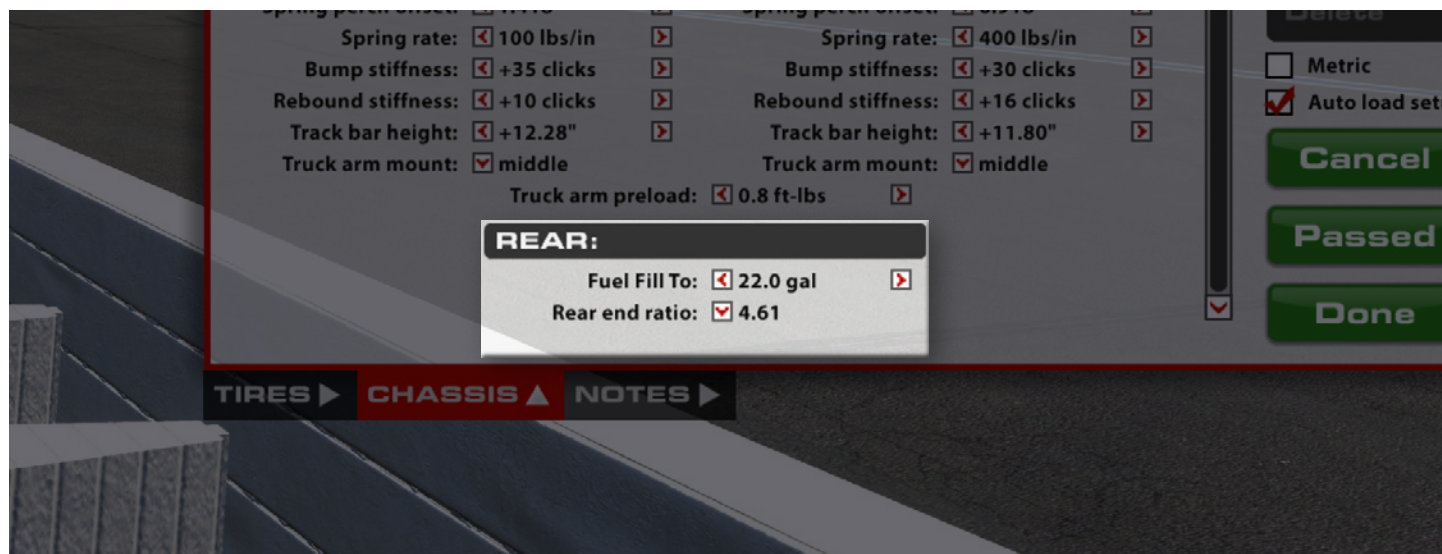
TRUCK ARM MOUNT

The rear axle is held in place longitudinally with two truck arms, mounted to the bottom of the chassis underneath the driver compartment. The forward mounts can be adjusted up and down, resulting in various anti-squat and rear-steer configurations. Higher truck arm mounts will reduce rear end grip, increase rear steer, add anti-squat, and reduce wheel hop under heavy braking. Lower truck arm mounts will increase rear end bite, decrease rear steer, reduce anti-squat, and increase the chances of wheel hop under heavy braking.

TRUCK ARM PRELOAD

Due to the truck arm mounting design on the rear axle, most chassis adjustments will result in the truck arms applying a torque to the rear axle tube. This preload has an extremely small effect on the chassis balance, but can be removed to eliminate any potential issues. It is good practice to reset this value to as close to zero as possible after making adjustments.

REAR



FUEL FILL TO

The Fuel Fill To setting alters the amount of fuel in the fuel tank when the car leaves the garage. Most races will be shorter than what a full tank is capable of, so it is important to get a good fuel reading in practice and carry no more fuel than is necessary for a race to keep overall vehicle weight low.

REAR END RATIO

The Rear End Gear Ratio is the ratio between the driveshaft pinion and the differential ring gear. Higher number values produce better acceleration but reduce top speed, lower number values reduce acceleration but result in a higher top speed. Generally it is good to gear the car to hit the engine rev-limiter briefly before reaching the braking zone for a corner.