USER MANUAL
NASCAR TRUCKS

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NASCAR CRAFTSMAN TRUCK SERIES

DEAR iRACING USER,

Congratulations on your purchase of a NASCAR Truck Series vehicle! From all of us at iRacing, we appreciate your support and your commitment to our product. We aim to deliver the ultimate sim racing experience, and we hope that you'll find plenty of excitement with us behind the wheel of your new car! Why race pick-up trucks? For starters, they're arguably the most popular automotive vehicle in America, with upwards of 2 million new pickups sold every year in the United States. And they're a blast to race, particularly the trucks of the NASCAR Truck Series. With 625 horsepower pushing their 3450 pounds around super speedways, ovals, short tracks and the occasional road course, NASCAR's trucks are fun to watch and challenging to drive.

The following guide explains how to get the most out of your new truck, from how to adjust its settings off of the track to what you'll see inside of the cockpit while driving. We hope that you'll find it useful in getting up to speed.

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

CHASSIS

DOUBLE WISHBONE INDEPENDENT FRONT
LIVE AXLE TRUCK ARM REAR

LENGTH	WIDTH	WHEELBASE	DRY WEIGHT	WET WEIGHT WITH DRIVER
4877 mm	**1905 mm**	**2845 mm**	**1510 kg**	**1633 kg**
192 in	75 in	110 in	3330 lbs	3600 lbs

POWER UNIT

NATURALLY ASPIRATED
STEEL BLOCK PUSHROD V8

DISPLACEMENT	RPM LIMIT	TORQUE	POWER
5.86 Liters	**8000**	**520 lb-ft**	**680 bhp**
358 cid		705 Nm	507 kW

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.

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Before diving into chassis adjustments, though, it is best to become familiar with the car and track. To that end, we have provided baseline setups for each track commonly raced by these cars. To access the baseline 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 baseline setup is not included, you may select a setup for a similar track to use as your baseline.

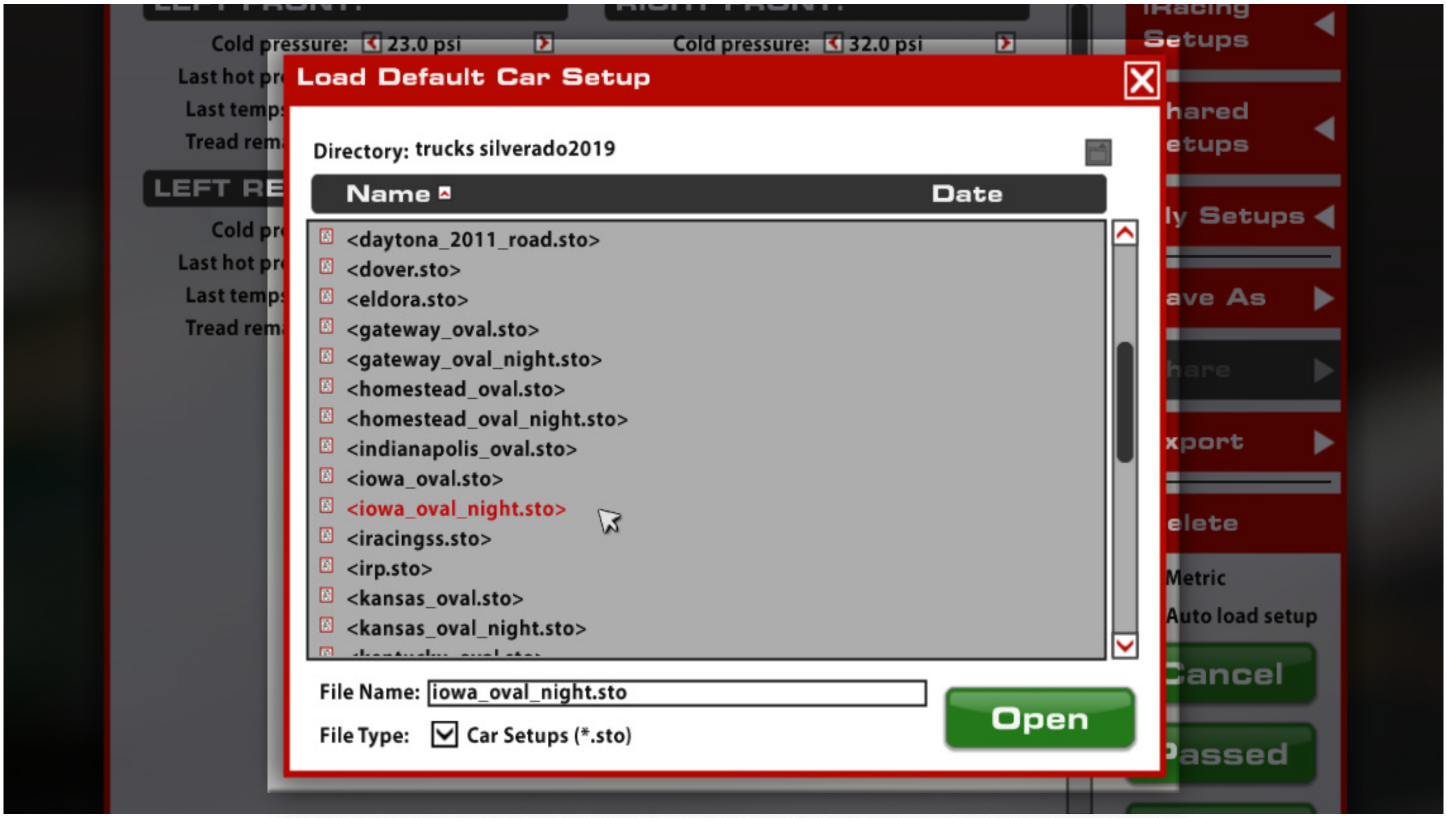
After you have selected an appropriate setup, get on track and focus on making smooth and consistent laps, identifying the proper racing line and experiencing tire wear and handling trends over a number of laps.

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. Give it a bit of throttle and ease off the clutch pedal to get underway. This car uses an h-pattern transmission, but only requires the clutch pedal to get the car rolling and when coming to a stop in gear. To upshift, simply let off the throttle and select the next higher gear. To downshift, give the throttle a blip while selecting the next lower gear. Upshifting is recommended when the tachometer is fully illuminated in red at high RPM. If you downshift too early, or don't blip the throttle sufficiently, the wheel speed and engine speed will be mismatched, leading to wheel hop at the rear and a possible spin.

LOADING AN iRACING SETUP



When you first load into a session, the iRacing Baseline setup will be automatically loaded onto the car. If you would like to try any of the other iRacing pre-built options, you may select it by going to Garage > iRacing Setups > and then selecting another option that fits your needs.

Because this car uses slightly different chassis and body configurations on different types of tracks, it will be necessary to load a setup from the same track type to pass tech inspection. For example, a setup for Talladega will pass at Daytona, but likely will not pass at Bristol.

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.

DASHBOARD

The NASCAR TRUCKS are all equipped with the Spek Pro gauge system, which combines easy-to-read backlit gauges, warning lights, shift light, and a visual Pit Road Speed helper all into a very intuitive system.

DASHBOARD OVERVIEW & FAILURE LIGHTS

While the gauges for each manufacturer are laid out differently, all three trucks feature the same gauges and the same functionality.

FORD F-150

TOYOTA TUNDRA

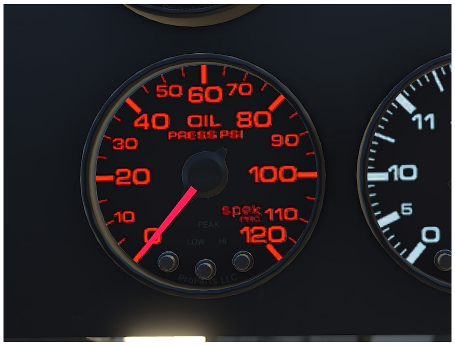
CHEVROLET SILVERADO

Each Truck features a large tachometer in the center with five accessory gauges arranged across the dashboard. These five gauges consist of:

Water Temp	Displays the temperature, in °F, of the water in the engine coolant system
Oil Temp	Displays the temperature, in °F, of the engine oil
Oil Pressure	Displays the pressure, in psi, of the engine oil flowing through the oil system
Fuel Pressure	Displays the fuel pressure, in psi, of the fuel flowing to the carburetor
Volt	Displays the voltage of the battery

Under normal operating conditions, these gauges will all display with a white backlight. Whenever a gauge is displaying a value that is dangerous to the engine, they will begin alternating between their normal color and red, such as the Oil Pressure gauge pictured below:

LOW OIL PRESSURE WARNING



TACHOMETER

NASCAR does not allow the use of either a speedometer or a pit speed limiter, thus the pit road speed limit can only be followed by running a specific RPM in a given gear. To help the driver maintain proper pit road speed without having to look at the tachometer, the Spek Pro tachometer features Pit Speed lights, which illuminate either yellow, green, or red to show whether the vehicle is traveling too slowly or speeding on pit road. These lights are accurate to a track's pit road speed limit only when the transmission is in 2nd Gear, and are set automatically when loading a track in the sim.

PIT SPEED INDICATOR

If the vehicle is below the pit road speed limit, the tachometer will illuminate the speed lights in yellow, with 1 light being farthest from pit road speed and all 7 being moderately slower than the pit road speed limit, usually just a few miles-per-hour slower than the limit.

APPROACHING PIT SPEED LIMIT

As the vehicle's speed approaches the pit road speed limit (but is not exceeding the speed limit), the pit lights will turn green, with 1 green light being the farthest from the pit road speed limit and 6 lights being just underneath the pit road speed limit.

AT PIT SPEED LIMIT

When the vehicle is traveling at the pit road speed limit, the 7th light will illuminate in green and the backlight color will change to green, illuminating the entire gauge with a green light.

EXCEEDING PIT SPEED LIMIT

When the pit road speed limit is exceeded, the entire gauge backlight will turn red and the speed lights will also change from green to red. Similar to the other modes, 1 red light is just above pit road speed limit and each additional light signals the vehicle is exceeding the speed limit. If the vehicle continues accelerating after the 7th red light, all speed lights will turn off and the backlight will return to its standard color.

SHIFT LIGHT

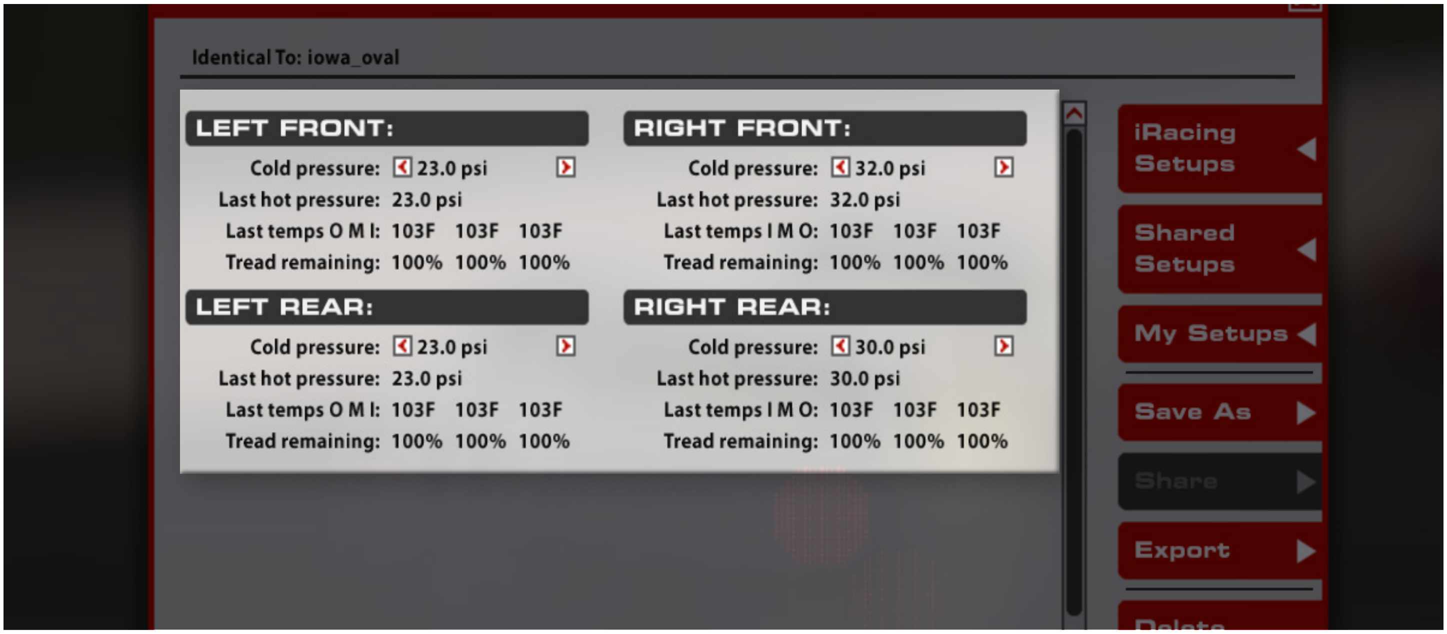
The tachometer is also equipped with a Shift Light mode, which turns the gauge backlight to red. This is distinguishable from the pit road speeding mode by the speed lights being off, and will be enabled just before the engine reaches the rev limiter.

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

TIRE DATA



COLD AIR PRESSURE

Air pressure in the tire when the car is loaded into the world. Higher pressures will reduce heat buildup, but will provide better grip with higher loads and higher speeds. Lower pressures will increase heat buildup, but will provide better grip at lower loads and lower speeds. Cold pressures should be set to track characteristics for optimum performance.

HOT PRESSURES

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. On left-turn ovals, the right-front tire should always see the highest buildup on a balanced car, while the left sides should be roughly the same, but it is important to monitor the hot pressures after a run and adjust accordingly. Ideally, the difference in hot pressures on one side of the car should be roughly equal to the difference between cold pressures after a longer run.

LAST TEMPERATURE

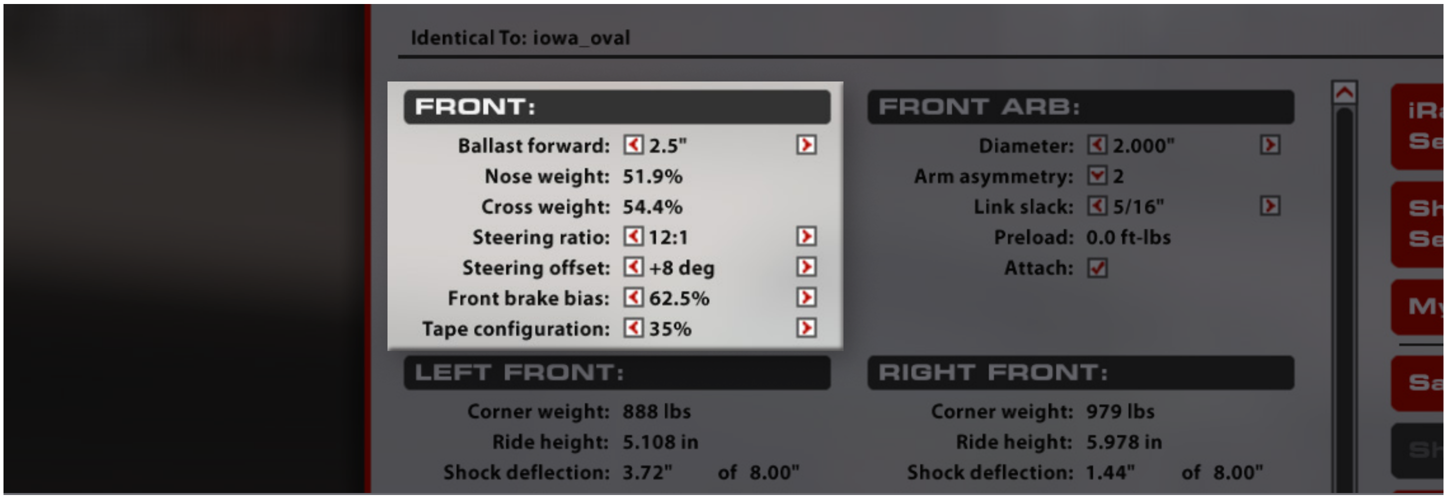
Tire carcass temperatures, measured via Pyrometer, once the car has returned from the pits. Wheel Loads and the amount of work a tire is doing on-track is reflected in the tire's temperature, and these values can be used to analyze the car's handling balance.
Center temperatures are useful for directly 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.

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, and can be used in conjunction with tire temperatures to analyze the car's handling balance. These values are measured in three zones across the tread of the tire.

CHASSIS

FRONT



BALLAST FORWARD

To meet minimum weight requirements, tungsten blocks are installed within the lower frame rails on the chassis. These blocks can be moved fore and aft in the chassis, directly influencing the car's Nose Weight value. The Ballast Forward value is simply a measurement of the location of these tungsten blocks relative to a reference point in the frame rail. Moving ballast forward in the car raises Nose Weight, moving it rearward reduces Nose Weight.

NOSE WEIGHT

The vehicle's Nose Weight is the percentage of total vehicle weight on the front tires, directly adjustable through the Ballast Forward adjustment. Nose Weight represents a rough approximation of the longitudinal Center of Gravity location in the vehicle and has a direct influence on the high-speed stability of the vehicle. Higher Nose Weight values result in a more directionally-stable vehicle, good for low-grip tracks and situations where the vehicle is set up with extra front downforce. Conversely, lower Nose Weight values are good for high-grip tracks and configurations with high rear downforce levels. Smaller tracks will also see benefits from lower Nose Weight values, as it will allow the rear of the vehicle to rotate easier.

STEERING RATIO

The Steering Ratio is a numerical value for how fast the steering response is in the vehicle's steering box. This ratio can be thought of as the degrees of steering input needed to produce one degree of turn on the steering box output shaft. For example, a 12:1 steering ratio will require 12° of steering input to rotate the steering output shaft 1°. A steering box with a lower ratio will feel more responsive to steering inputs and will require less steering input to reach the amount needed to navigate a corner. A steering box with a higher ratio will feel less responsive and will require more steering input to reach the amount needed to navigate a corner.

CROSS WEIGHT

Cross weight is the amount of weight on the car's Left-Rear and Right-Front tires relative to the entire weight of the car, displayed in percent. This is adjusted via the corner Spring Perch Offset adjustments as well as Front ARB preload and, to a very small extent, the Truck Arm Preload. For an oval car, Cross Weight is one of the most influential settings for grip level while the vehicle is in a turn. Higher Cross Weight values will add weight to the left-rear and right-front, both stabilizing entry and helping drive-off on corner exit. Lower Cross-Weight values will help the vehicle rotate and keep it "free" in the corner to prevent speed from being lost, however too low can result in unstable entry and exit. Due to this vehicle's design with a Coil-Bind front suspension, Cross Weight is a major consideration for front end suspension configuration. See the section below for more information.

STEERING OFFSET

Degrees of steering wheel offset, achieved with a combination of installing the steering wheel into the quick release mechanism off-center and adjusting front tie-rods. This can be used to compensate for chassis settings which place the wheel off center and is primarily a driver comfort adjustment.

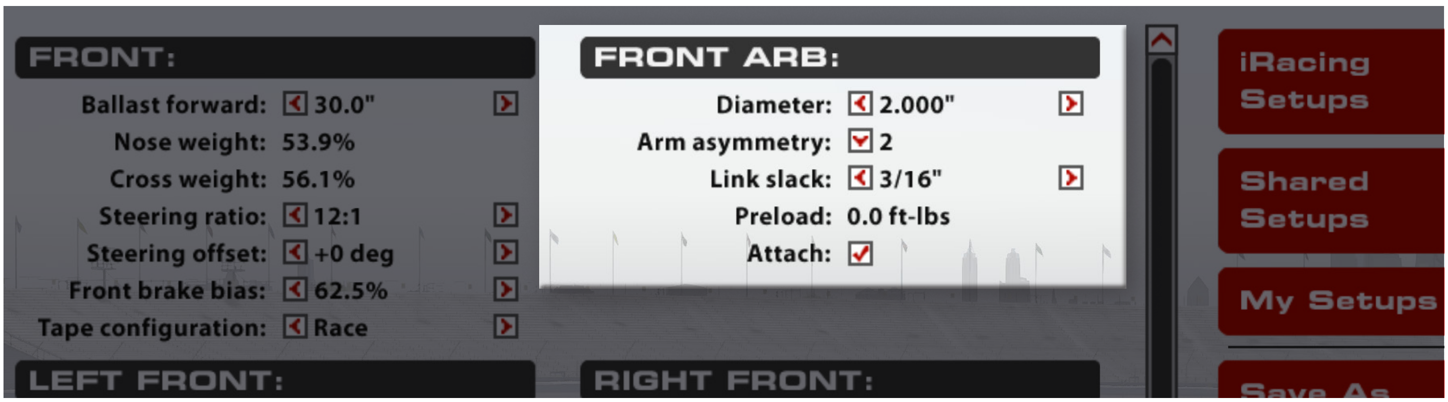
FRONT BRAKE BIAS

Brake Bias is the percentage of braking force that is being sent to the front brakes. Values above 50% result in more pressure being sent to the front, while values less than 50% send more force to the rear. This should be tuned for both driver preference and track conditions to get the optimum braking performance for a given situation.

TAPE CONFIGURATION

The radiator grille on the front bumper can be run in one of two configurations: Race and Qualifying. The Qualifying configuration will block off the grille entirely, increasing downforce and reducing drag, but preventing air from reaching the engine's radiator and increasing engine temperatures considerably. This increases aerodynamic performance but risks an engine failure after only a few laps.
The Race configuration opens up a portion of the grille to allow air to cool the engine with a slight loss in aerodynamic performance.

FRONT ARB



DIAMETER

The Front Anti-Roll Bar (ARB, or Sway Bar) diameter affects the roll stiffness of the front suspension. Increasing the diameter of the ARB will result in a higher roll stiffness on the front suspension, helping to keep the chassis flat relative to the racing surface, but can also increase understeer. While not absolutely necessary, a large bar is typically desired (>2.00") to maintain bind in both front springs throughout the corner. For conventional setups a smaller bar can be used.

ARM ASYMMETRY

The difference in length between the left and right sway bar arms can be altered via the Arm Asymmetry settings. The "None" setting will set the two arms at equal length, while increasing the setting will increase the difference in length of the two arms. This can be used to produce multiple effects, primarily serving to produce a higher anti-roll force on the right-front suspension than on the left-front, effectively rolling the chassis to the left when under load.
This can be used to correct excessive roll without increasing the ARB diameter. A knock-on effect of asymmetry is a slight increase in front end heave stiffness, or resistance to vertical travel.
Since the two different lengths of arms cause the bar to be twisted at different rates, vertical travel will load the ARB, possibly leading to higher front ride heights on straights.

LINK SLACK

The left-side sway bar linkage can be adjusted to either delay bar engagement or apply a static load to the bar. The linkage itself is a slider-type linkage, and any positive link slack will require the left-front wheel to travel prior to the ARB experiencing any load. This adjustment directly affects the bar's Preload, outlined below.

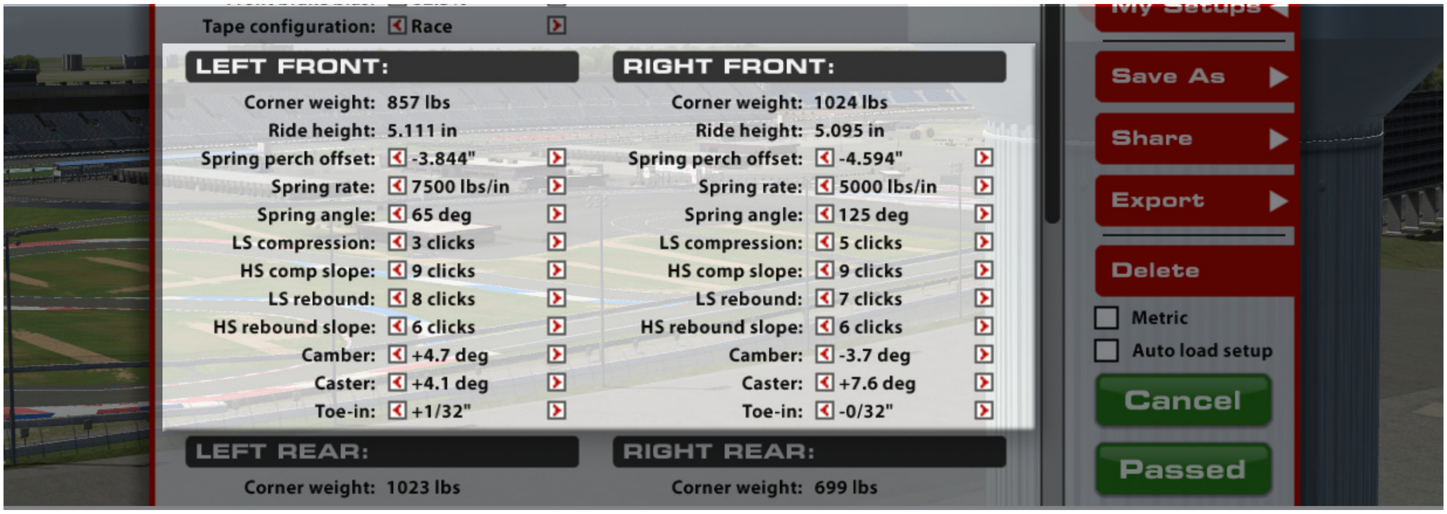
PRELOAD

The ARB Preload is the static load in the bar while the vehicle is in the garage. Preload adjustments can be used to alter the dynamic loads in the bar while on track, and can be used to remove or add bar load in the corners and on the straights.

ATTACH

A quick way to unhook the anti-roll bar to allow for static suspension adjustments without bar twist confusing things; increase link slack and unhook the ARB before making spring/ride height adjustments; attach and reduce link slack (ARB preload) when done.

FRONT CORNERS



COIL BINDING & "PIGTAIL" SPRINGS

The front suspension for the NASCAR Trucks emulates "pigtail"-style coil-bind springs. Coil-binding is when the coils in a spring are all in contact with each other, thus creating a "solid" suspension element. Instead of binding the full spring (coils are in contact all the way around the spring), a "Pigtail" spring binds only one side of the spring using a specially-shaped lower spring perch to compress only one side of the spring. This produces both a very soft initial rate and allows for a very stiff rate at full travel, providing a low dynamic ride height, a more compliant suspension when compared to a traditional coil-bind setup, and excellent aerodynamic platform control at the low heights.

This effect is created with a two-stage, progressive front spring rate. When the chassis is up above the minimum ride heights the springs will be very soft, around 200 lb/in. As the suspension travels while on track from building aerodynamic loads the springs will eventually bind and transition to a much stiffer second rate, selected in the garage. The point where this transition happens is controlled by the Spring Angle setting, described in more detail in its own section. For more information on tuning front ride heights with this suspension system, see the "Setup Tips" section at the end of this guide.

CORNER WEIGHT

The weight underneath each tire under static conditions in the garage. Correct weight arrangement around the car is crucial for optimizing a car for a given track and conditions. Individual wheel weight adjustments and crossweight adjustments are made via the Spring Perch Offset setting.

RIDE HEIGHT

Distance from ground to a reference point on the chassis. Front heights are measured at the bottom of the chassis frame rail just behind the wheel well and can be roughly identified via the skirt rivets at the bottom of the door. Since these values are measured to a specific reference point on the car, these values may not necessarily reflect the vehicle's ground clearance, but instead provide a reliable value for the height of the car off of the race track at static values. Adjusting Ride Heights is key for optimum performance, as they can directly influence the vehicle's aerodynamic performance as well as mechanical grip.

SPRING PERCH OFFSET

Spring perch offset is used to adjust ride height and corner weight. Adjusting this setting changes the preload on the spring under static conditions. Decreasing the value increases preload on the spring, adding weight to its corner and increasing the ride height at that corner. Increasing the value does the opposite, reducing height and weight on a given corner. These should be adjusted in pairs (left and right, for example) or with all four spring preload adjustments in the car to prevent crossweight changes while adjusting ride height.

SPRING RATE

Spring Rate changes how stiff the spring is, represented in a force per unit of displacement. Primarily responsible for maintaining ride height and a good attitude under changing wheel loads, stiffer springs will maintain the car's attitude better while sacrificing mechanical grip. Softer springs will deal with bumps better and increase mechanical grip, however this could cause the chassis to pitch and roll too much, hurting aerodynamic performance at faster tracks

SPRING ANGLE

Spring angle changes the position of the lower spring perch within the lower control arm spring bucket. This value rotates the spring perch around the spring's center axis, relocating the highest point of the perch farther inboard or outboard to change how the spring binds in travel and the spring rate transitions from the softer initial rate to the rate selected in the Spring Rate option. Higher angle values will reduce the amount of suspension travel necessary to reach the spring rate transition while lower values will increase the amount of travel necessary.

LS COMPRESSION

Low-Speed (LS) Compression affects how resistant the shock is to compression (reduction in length), usually in chassis movements as a result of driver input, such as the front shocks under braking. Higher LS Compression settings will prevent the shock from compressing quickly and can quickly increase the load transferred to the wheel when the suspension is in compression, but can prevent the suspension from absorbing smaller bumps and dips in the track. Lower LS compression settings will allow for better bump absorption, but can hurt aerodynamic stability due to excessive body movement with driver inputs.

HS COMPRESSION SLOPE

The High-Speed Compression can be further tuned with the Compression Slope setting. This setting shifts the high-speed adjustment of the shocks higher or lower, allowing for a wider range of options for various track conditions. Higher slope settings will produce a more linear compression setting, with compression force increasing with velocity. These settings are good for very bumpy surfaces to keep the shock from “blowing out” over large bumps, preventing the chassis from striking the racing surface. Lower slope settings will produce a more digressive compression setting, with forces not increasing significantly as velocity increases. This is good for smoother tracks where large suspension movement is not expected. When tuning shocks for a track, change the slope setting first to suit the track, then fine-tune the shock using the high- and low-speed settings.

LS REBOUND

Low-Speed (LS) Rebound affects how resistant the shock is to extension (increase in length), typically during body movement as a result of driver inputs, such as the rear shocks under braking. Higher rebound values will slow extension of the shock, lower values will allow the shock to extend faster. Higher rebound values can better control aerodynamic attitude but can result in the wheel being unloaded when the suspension can't extend enough to maintain proper contact with the track. Excessive front rebound can lead to unwanted oscillations due to the wheel bouncing off of the track surface instead of staying in contact.

HS REBOUND SLOPE

The High-Speed Rebound can be further tuned with the Rebound Slope setting. This setting shifts the high-speed adjustment of the shocks higher or lower, allowing for a wider range of options for various track conditions. Higher slope settings will produce a more linear rebound setting, with rebound force increasing steadily with velocity. These values will give a more controlled damping characteristic over very bumpy surfaces. Lower values will result in a more digressive rebound curve, which is good for smoother surfaces.

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 itis 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.

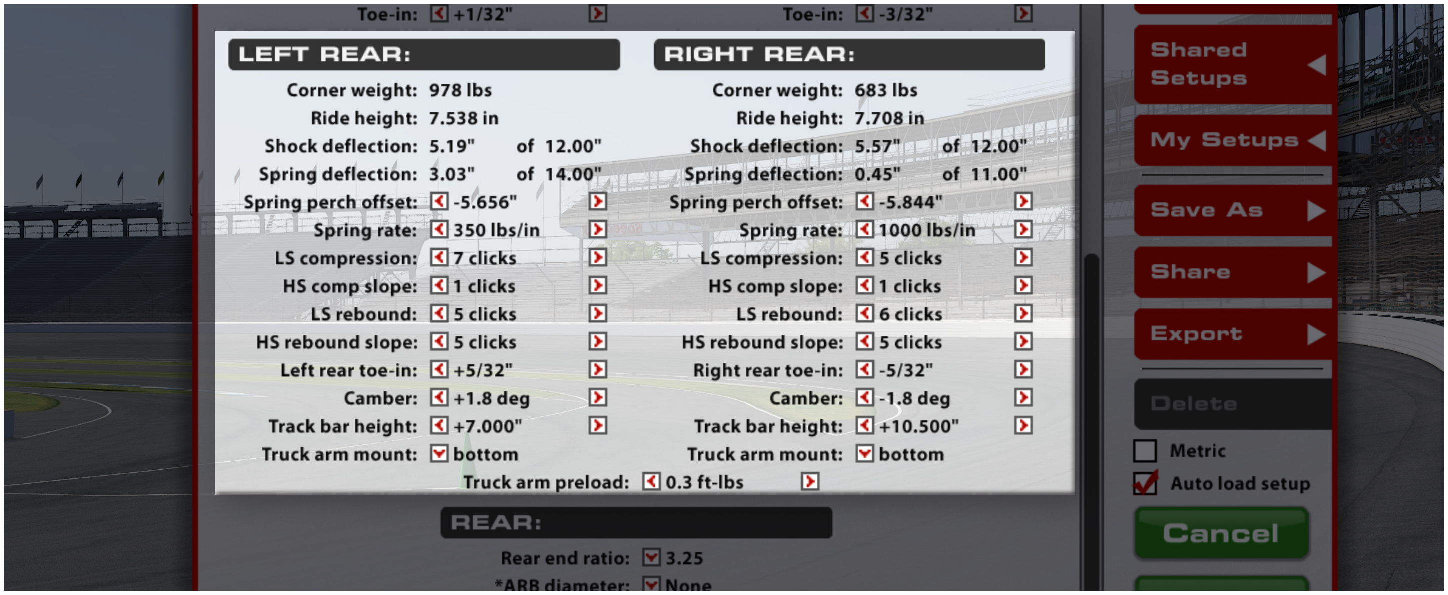
CASTER

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 will cause the vehicle to pull to the left, a desirable effect on ovals.

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. On the front, toe-out is generally preferred. More toe-out typically provides better turn in and straight line stability, but at the cost of increased tire temperature and wear.

REAR CORNERS



CORNER WEIGHT

The weight underneath each tire under static conditions in the garage. Correct weight arrangement around the car is crucial for optimizing a car for a given track and conditions. Individual wheel weight adjustments and crossweight adjustments are made via the Spring Perch Offset setting.

RIDE HEIGHT

Distance from ground to a reference point on the chassis. Since these values are measured to a specific reference point on the car, these values may not necessarily reflect the vehicle's ground clearance, but instead provide a reliable value for the height of the car off of the race track at static values. Adjusting Ride Heights is key for optimum performance, as they can directly influence the vehicle's aerodynamic performance as well as mechanical grip. Increasing rear ride height will increase rear downforce as well as slightly increasing overall downforce and drag. Conversely, reducing rear ride height will reduce rear downforce and reduce overall downforce and reduce drag.

SPRING PERCH OFFSET

Spring perch offset is used to adjust ride height and corner weight. Adjusting this setting changes the preload on the spring under static conditions. Decreasing the value increases preload on the spring, adding weight to its corner and increasing the ride height at that corner. Increasing the value does the opposite, reducing height and weight on a given corner. These should be adjusted in pairs (left and right, for example) or with all four spring preload adjustments in the car to prevent crossweight changes while adjusting ride height.

SPRING RATE

Spring Rate changes how stiff the spring is, represented in force per unit of displacement. Primarily responsible for maintaining ride height and aerodynamic attitude under changing wheel loads, stiffer springs control the chassis attitude better (less roll or pitch change) which is good for aerodynamics and camber control, but mechanical grip is often better with softer springs which allow for more track surface compliance but reduce aerodynamic control. For ovals, a softer left-rear spring (relative to the right-rear) is desired to prevent the dynamic cross from being too high in the corners, which will result in a balance shift towards understeer through a run.

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TOE-IN

Rear toe in this vehicle serves to introduce “Skew”, where the vehicle travels through the air with a non-zero amount of yaw relative to the direction of airflow, producing Sideforce. Setting the right-rear to a negative value and the left-rear to a positive value will add positive Skew, decreasing crossweight and shifting aero balance forward slightly. Setting the right-rear to a positive value and left-rear to a negative value will add negative Skew, reducing sideforce and centering the rear spoiler behind the greenhouse for some toe settings. Positive skew is useful at large short tracks and intermediate tracks, while negative skew will reduce drag for superspeedways and aid in drive-off for smaller short tracks.

TRACK BAR HEIGHT

The rear axle is held in place laterally via a Track Bar, mounted to the left side of the rear axle housing and to the chassis frame on the right side. Overall height of the track bar dictates roll center location for the rear suspension and thus affects roll stiffness, with a higher track bar increasing rear roll stiffness and shifting the chassis balance to oversteer. Lower track bar settings will increase lateral traction due to a reduction in roll stiffness and roll center height. The track bar end heights can also be set to different values, known as “rake” or “split”. A positive track bar rake, with the right-side mounted higher, will increase oversteer on corner exit, as well as adding skew through vertical travel. Negative track bar rake will increase traction on corner exit, but will remove skew through vertical travel.

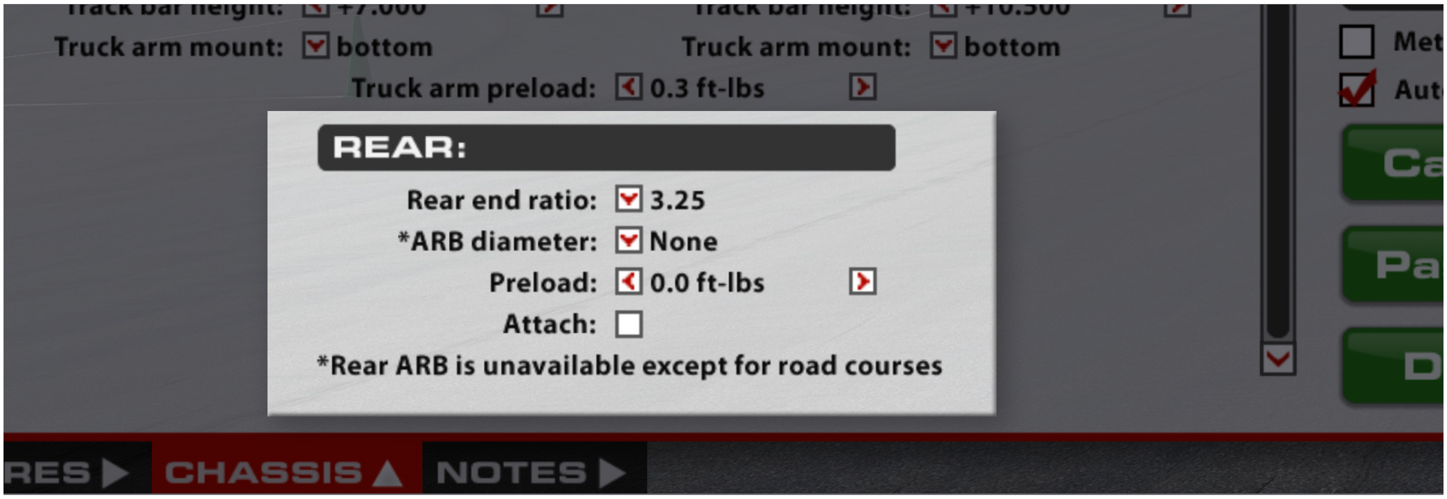
TRUCK ARM MOUNT

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 housing. 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



REAR END RATIO

The Rear End Gear Ratio is the ratio between the driveshaft pinion and the differential ring gear. For all ovals with NASCAR-sanctioned events, this value is either locked to one ratio or there is a choice of two ratios. Higher number values produce better acceleration but reduce top speed, lower number values reduce acceleration but result in a higher top speed.

ARB DIAMETER

The Rear Anti-Roll Bar (ARB, or Sway Bar) diameter affects the roll stiffness of the rear suspension. Increasing the diameter of the ARB will result in a higher roll stiffness on the rear suspension, increasing oversteer, while reducing the ARB diameter will reduce roll stiffness and increase understeer. A rear ARB is only available at Road Courses and has no effect on the chassis on ovals.

PRELOAD

The ARB Preload is the static load in the bar while the vehicle is in the garage. Since a rear ARB is only available at Road Course circuits, it is best to keep this value as close to zero as possible when using a rear ARB to prevent asymmetric handling issues. When the rear ARB is not in use, this setting has no effect on the chassis.

ATTACH

A quick way to unhook the anti-roll bar to allow for static suspension adjustments without bar twist confusing things; increase link slack and unhook the ARB before making spring/ride height adjustments; attach and reduce link slack (ARB preload) when done.

ARB PRELOAD

The ARB Preload is the static load in the bar while the vehicle is in the garage. Preload adjustments can be used to alter the dynamic loads in the bar while on track, and can be used to remove or add bar load in the corners and on the straights.

ATTACH

A quick way to unhook the anti-roll bar to allow for static suspension adjustments without bar twist confusing things; increase link slack and unhook the ARB before making spring/ride height adjustments; attach and reduce link slack (ARB preload) when done. This option will completely detach the bar and keep it from being loaded while on track, if desired.

SETUP & DRIVING TIPS

The NASCAR Trucks can produce some of the best racing on the oval side of iRacing's service, but as with every car the Trucks have their own traits and personality. With a high amount of engine power and some of the highest downforce numbers of all the oval content they are very easy to drive but require a high level of precision and skill to drive quickly.

Aerodynamic performance is just under what is necessary to be able to run wide-open at many tracks, so a keen sense of how much grip is available and skillful throttle modulation is key to fast lap times. Generally, in race trim, it's often going to be faster to crack the throttle slightly on entry and let the truck drive itself into the corner than to stay wide open and fight the front tires to the line you want to run. In Qualifying trim a wide-open lap is attainable, but it can be "sketchy", as the real drivers say.

RIDE HEIGHTS & ATTITUDE

As with all oval cars, the setup process involves hitting predetermined height targets in the corners and finding a way to keep the chassis and body in that position as long and as consistently as possible. Your targets for chassis setup will be a minimum splitter height and a rear height range.

SPLITTER HEIGHT

The optimum splitter height, and minimum ideal height, is around 0.25" or just above 6mm, measured via the telemetry channel CFSRrideheight. This height sensor is placed on the leading edge of the splitter along the centerline and displays the ground clearance to the front of the truck. As this height is reduced, overall downforce will increase and aero balance will shift forward slightly. If the splitter is allowed to pass below the minimum height of 0.25", an aerodynamic stall will occur and overall downforce will drop significantly. Further, a risk of ground contact from the splitter will occur, unloading the front tires and inducing heavy understeer.

Tuning the splitter height is relatively a relatively simple process and can be done in three steps:

-Spring Rate selection
-Spring Angle setting
-Spring Perch Offset adjustment

Selecting spring rates is going to come down to personal preference and track characteristics. Tracks with high loads or very smooth surfaces can use very stiff spring rates, while rougher tracks or tracks with lower cornering speeds may see better performance with slightly softer spring rates. Further, some drivers may prefer one spring stiffer than the other or both the same rate, but this will come down to testing configurations and finding which you like the best.

Pigtail-style coil bind springs only bind one half of the spring while the other half is left to act as a working spring. The Spring Angle setting rotates the lower spring perch within the lower control arm spring bucket to change how far inboard the bound half of the spring is on the suspension, changing how much suspension travel is available before the Spring Rate chosen in the previous step takes over. Increasing the Angle value will reduce suspension travel and cause the splitter to run higher while reducing the angle will allow more travel before the spring rate transition and lower the splitter. Use this Spring Angle value to get the splitter as close to the target value as you can, then move to the Spring Perch Offsets.

Since the Pigtail springs work entirely within the main spring, the Spring Perch Offset values can be used to fine-tune the front-end ride heights once the height has been roughed-in with the Spring Angle. Increasing the Spring Perch Offset values (right clicks in the garage) will lower the static ride height and lower the splitter height when loaded in the corner. Conversely, decreasing the values (left-clicks) will raise the front of the car and the splitter's dynamic height in the corner. If large Spring Perch Offset changes are needed, it's usually best to go back to the Spring Angle and change that value instead of large Perch changes.

REAR RIDE HEIGHTS & REAR SPRINGS

Rear ride heights are best run in a range of heights for most situations. The trucks will generate the most downforce when the rear end between around 3.9" and 4.3" (100-110mm). Running the rear higher than this range will add very little downforce but a lot of drag and is not recommended. Running lower than this range can reduce drag and downforce for tracks with the highest top speeds but can risk damaging the underside of the car.

Choosing rear spring rates is much simpler than choosing front spring rates, as the rears are purely linear and each spring has its own specific purpose. The simplest way to approach rear springs is to set the Right-Rear spring for the target rear height and adjust the Left-Rear spring for handling and roll, with the Right-Rear spring generally being a few times stiffer than the Left-Rear. Generally you will want the stiffest Right-Rear spring spring you can handle and then fine-tune the dynamic height with the Perches. For the Left-Rear, softening the spring will roll the truck to the left and free the chassis up through the corner while stiffening the spring will raise the left side of the chassis and tighten the car through the corner.

CROSSWEIGHT

One of the most important settings in the garage is the crossweight, or the percentage of the chassis' total weight on the Right-Front and Left Rear as a percentage. This value is a major factor in the mechanical handling balance and how the car will get into and out of the corner.

To adjust crossweight without introducing other issues, follow these steps:

- Note the current Front ARB Preload and disconnect the bar. Once disconnected, increase the Link Slack option to a large positive value, which will prevent the bar from influencing other adjustments while disconnected.
  - If the bar has a large amount of preload this may cause the ride heights to move into illegal ranges. This is okay, as they should return to legal ranges when the bar is reattached and loaded.

- Using the Spring Perch Offsets, adjust the crossweight by making the following changes:
  - Increase Crossweight
    - Right Rear - Right Click (Increase value, decrease corner weight)
    - Left Rear - Left Click (Decrease value, increase corner weight)
    - Left Front - Right Click (Increase value, decrease corner weight)
    - Right Front - Left Click (Decrease value, increase corner weight)
  - Decrease Crossweight
    - Right Rear - Left Click (Decrease value, increase corner weight)
    - Left Rear - Right Click (Increase value, decrease corner weight)
    - Left Front - Left Click (Decrease value, increase corner weight)
    - Right Front - Right Click (Increase value, decrease corner weight)

- If you're new to the setup process, keep these adjustments to one or two clicks at a time and watch what happens to the chassis. If you're comfortable with the adjustments, multiple clicks (Shift-Click is equal to 5 clicks) can be made as long as you keep track of everything that's changing. Always pay attention to the ARB preload to make sure it stays at zero during crossweight adjustments. If it registers a value, simply adjust the Link Slack to remove the preload and continue with weight adjustments.

- Once the desired crossweight change has been made, reattach the ARB and preload the bar to what it was initially. Following these steps you should now have a change in crossweight with almost no change in ride heights or alignment!

Deciding on a crossweight adjustment is usually fairly simple, it will come down to how the car is behaving through the center and on throttle application. If the car understeers through the center or has too much rear traction on throttle causing understeer on exit, decrease the crossweight. If the car oversteers through the center or the rear tires spin too easily on initial throttle, increase the crossweight.

It is also very important to focus on crossweight adjustments progressively through the corner: Start with entry and work on the car around the corner. It's very easy to fall into the trap where the rear of the car loses grip on exit and the driver wants more crossweight to correct that, when the root cause is understeer through the center of the corner. This understeer will result in the driver applying too much steering input and over-slipping the front tires, which "bite" as steering is removed through corner exit and causing the rear to lose traction. In this situation, adding crossweight will make the center of the corner worse and potentially make the car "looser" on exit. This pitfall can be avoided by looking at the tire temperatures screen (after a steady run without spins) and noting whether the temperatures show hotter on the RF than the RR tire, an indication that the car is understeering and the crossweight needs to be reduced. This will often, counter-intuitively, tighten the car on exit and free the car up through the center.

ADJUSTING FOR WEATHER AND TIME-OF-DAY

Varying weather conditions and race start times can greatly affect the amount of grip available from the track surface. Hotter track temperatures will produce less grip and often cause the car to oversteer, especially on throttle, while cooler tracks will increase grip and shift the balance towards understeer. To correct for weather and track temperature changes, the only adjustment needed is crossweight: Increase crossweight for warmer temperatures, decrease it for cooler temperatures.

FINAL CONSIDERATIONS

Once these areas of the setup are complete you can move onto finer details like shocks and alignments. These settings will be dependent on the spring package and track characteristics, so don't be afraid to test various settings to see what works for you. The Fixed setups provided with the car are close to where the car would like to be run as far as heights and weight balance, but are tuned more towards mild understeer to make the car more approachable. Keep it simple, make small adjustments, and you should be able to get wherever you want to go!