NASCAR CRAFTSMAN TRUCKS

FORD F-150
TOYOTA TUNDRA
CHEVROLET SILVERADO

USER MANUAL

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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
4877mm 192in	1905mm 75in	2845mm 112in	1452kg 3200lbs	1568kg 3456lbs

POWER UNIT

NATURALLY ASPIRATED STEEL BLOCK PUSHROD V8

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

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.

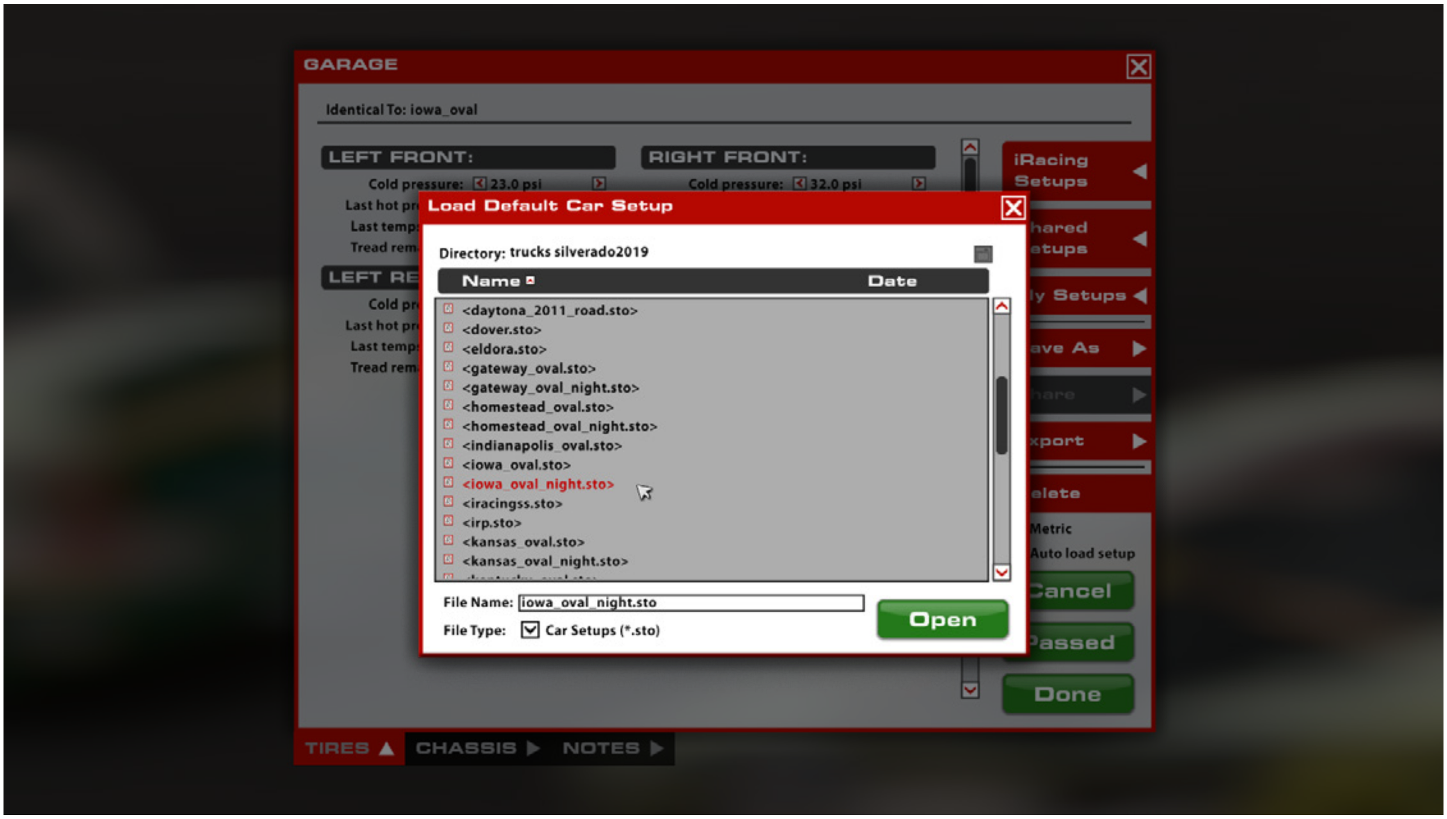
Before diving into chassis adjustments, though, it is best to become familiar with the car and track. To that end, we have provided baseline setups for each track commonly raced by these cars. To access the baseline setups, simply open the Garage, click iRacing Setups, and select the appropriate setup 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 Craftsman 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 for the Silverado and the F-150, and a blue backlight in the Toyota Tundra. 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 SETTINGS (ALL FOUR TIRES)

COLD 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 END

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.

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 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.

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.

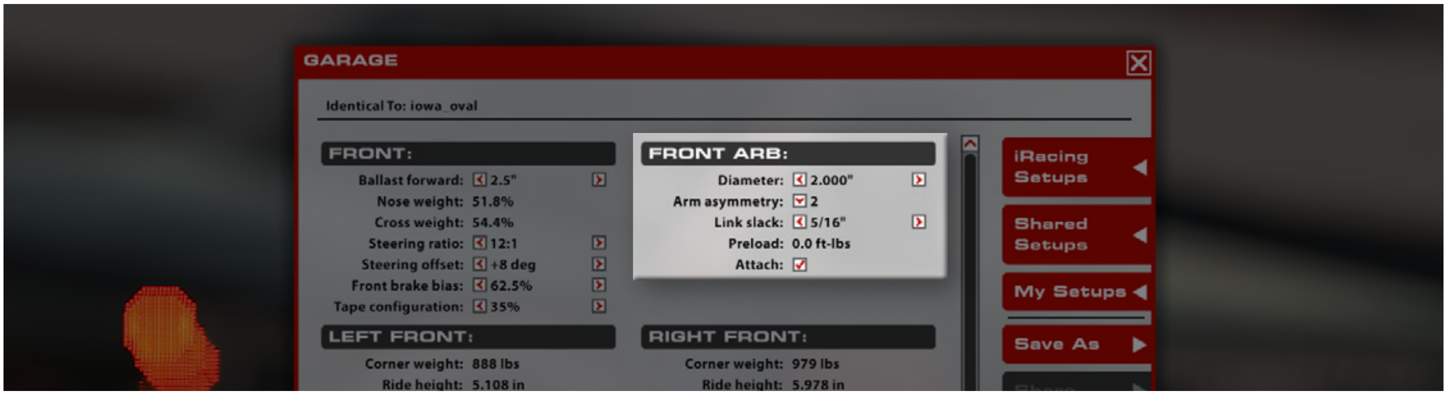
FRONT BRAKE BIAS

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

Percentage of grill opening blocked off by tape. Increasing the percentage reduces aerodynamic drag and increases downforce while shifting the downforce balance forward, but reduces air flow to the cooling system and increases engine heat. Decreasing percentage increases cooling but also increases drag and reduces downforce.

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.

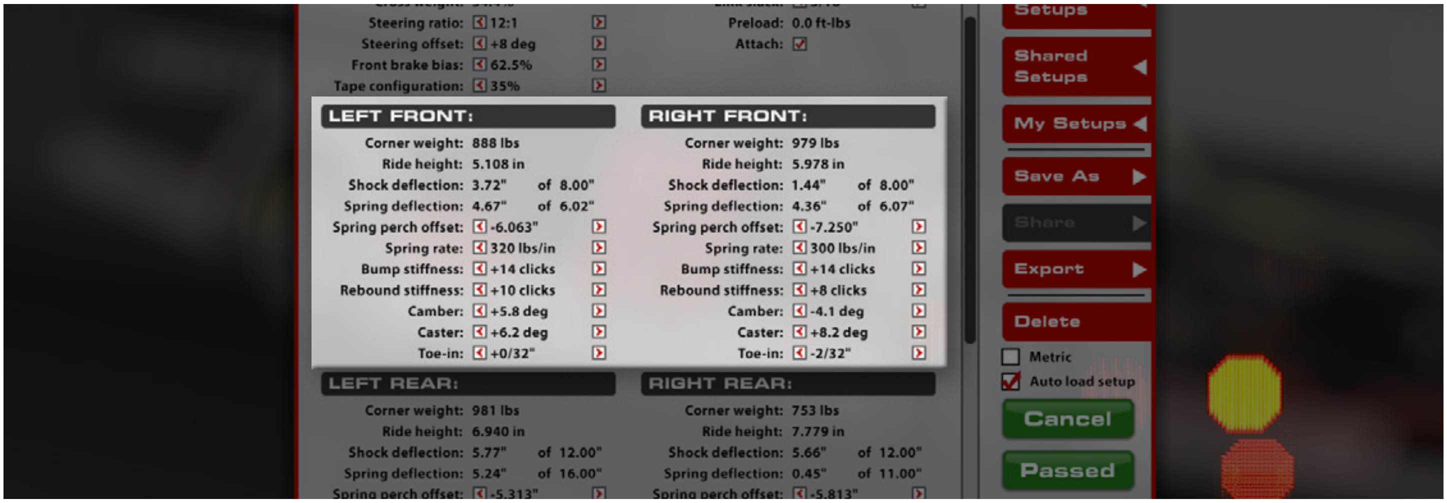
PRELOAD

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

The front suspension for the NASCAR Trucks is designed to allow Coil-Binding as well as Conventional-style setups. Coil-binding is when the coils in a spring are all in contact with each other, thus creating a “solid” entity and no longer allowing suspension travel. While this does create an extremely stiff suspension, the aerodynamic benefits usually outweigh the drawbacks. For the iRacing simulation, all of the front springs from 300lb/in to 450lb/in can be bound within the suspension travel ranges allowed by the ride height rules. Springs in this range are soft enough that they will bind simply from aerodynamic loads and maintain the bind (or float just above it) for the entire lap, so not much is needed to get it working. Tuning a coil-bind setup can be broken down into two parts: Bind timing and Spring Length choice.

Timing when each front spring will bind is crucial, as it has a very large effect on the vehicle’s aerodynamic attitude, wheel loads, and overall balance. In most cases the left-front spring will bind first and stay bound until returning to the pits, with the right-front binding in the corners and releasing on the straights. To tune the timing, the primary adjustment is static crossweight. Increasing the crossweight will preload the right-front spring more and bind it earlier while allowing the left-front to drop slightly. Conversely, reducing static crossweight will preload the left-front spring, raising that corner but lowering the right-front. While it’s easy to fall into the trap of changing the ARB to counteract roll issues, this can cause one spring to stop binding, leading to long-run handling issues. Learning to use the crossweight to tune the car’s attitude is key in extracting the most performance out of this style of setup.

Sometimes crossweight will either move a corner too much or won’t move a corner enough, and in those situations you will need to change the spring length to compensate. While spring rate is used to manage loads on a Conventional-style setups, the spring rates for a Coil-Bind setup are used to change the length of the spring when fully bound. Higher rate springs will be shorter when bound while lower rate springs will be longer.

When setting up for a new track, it’s better to use the spring rates to set the rough heights and then use the crossweight to tune the roll attitude of the chassis. Most, if not all, of the roll attitude can be set through these two parameters, with a moderate- to large-diameter ARB being helpful for keeping the chassis consistently on each spring. It is not completely necessary, however, to use a large diameter sway bar for this type of setup to work.

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.

SHOCK DEFLECTION

Shock Deflection is how much the shock has compressed from its fully extended length while under static conditions in the garage.

SPRING DEFLECTION

Spring Deflection is the amount the spring has compressed from its free length while under static conditions in the garage. For the front springs on a coil-bind setup, this is extremely important in that it shows how much travel is available in the spring before binding.

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. On the front end of the vehicle, the spring's behavior changes based on the style of setup. For a conventional setup with spring values at or above 500lb/in the springs will behave in a traditional fashion, managing changing loads and maintaining chassis heights and aerodynamic attitude. On a coil-bind setup with spring values below 500lb/in, the front spring rates serve little purpose in influencing the handling balance and instead change the length of the spring when bound.

BUMP STIFFNESS

Bump stiffness affects how resistant the shock is to compression (reduction in length), usually in chassis movements as a result of driver input (steering, braking, & throttle) and cornering forces. The front shocks play a significant role in coil-bind setups, with the Bump settings controlling how aggressively the spring will bind. Higher Bump settings will result in a softer, less abrupt bind, but can sometimes delay binding if set too high. Lower Bump settings will bind the spring sooner, but the change in feel can be more sudden.

REBOUND STIFFNESS

Rebound stiffness affects how resistant the shock is to extension (increase in length), typically during body movement as a result of driver inputs. 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.

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.

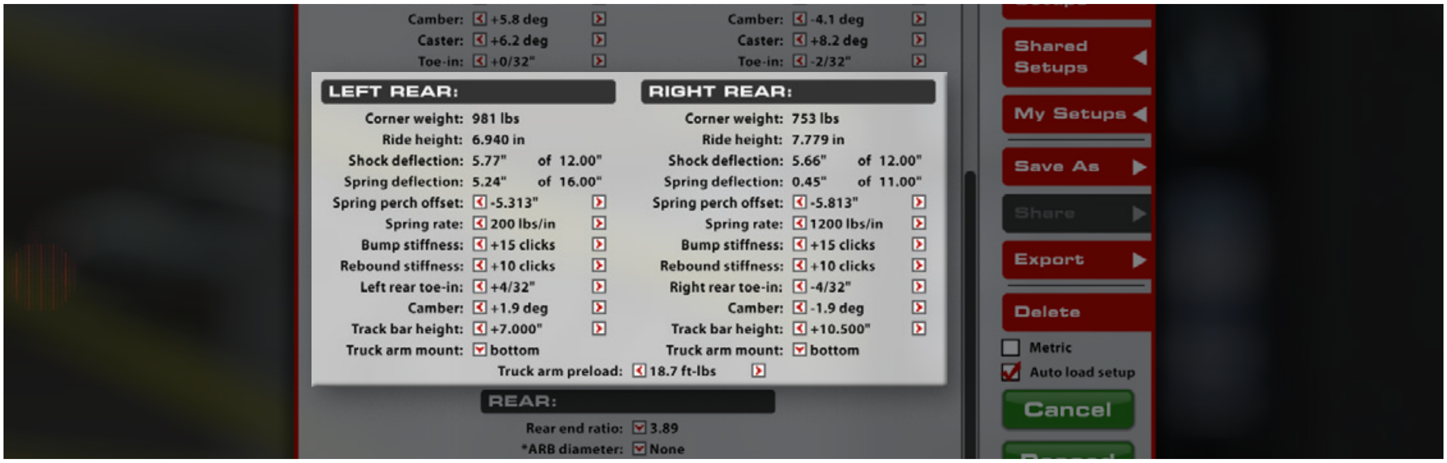
CASTER

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 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.

SHOCK DEFLECTION

Shock Deflection is how much the shock has compressed from its fully extended length while under static conditions in the garage.

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Spring Deflection is the amount the spring has compressed from its free length while under static conditions in the garage.

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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.

BUMP STIFFNESS

Bump stiffness affects how resistant the shock is to compression (reduction in length), usually in chassis movements as a result of driver input (steering, braking, & throttle) and cornering forces. The front shocks play a significant role in coil-bind setups, with the Bump settings controlling how aggressively the spring will bind. Higher Bump settings will result in a softer, less abrupt bind, but can sometimes delay binding if set too high. Lower Bump settings will bind the spring sooner, but the change in feel can be more sudden.

REBOUND STIFFNESS

Rebound stiffness affects how resistant the shock is to extension (increase in length), typically during body movement as a result of driver inputs. 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.

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.