iRacing

SUPER FORMULA LIGHTS

USER MANUAL

SUPER FORMULA LIGHTS

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SUPER FORMULA LIGHTS

DEAR iRACING USER,

Congratulations on your purchase of the Super Formula Lights! 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!

The following guide explains how to get the most out of your new car, 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 WITH PUSHROD-ACTUATED INBOARD SPRINGS

LENGTH	WIDTH	WHEELBASE	DRY WEIGHT	WET WEIGHT WITH DRIVER
4934mm 194in	**1875mm** 74in	**2866mm** 113in	**587kg** 1250lbs	**690kg** 1520lbs

POWER UNIT

TURBOCHARGED, 3 CYLINDER, TOYOTA TGE33

DISPLACEMENT	RPM LIMIT	TORQUE	POWER
1.6 Liters 97.6CID	**7100 RPM** SOFT LIMIT **7300 RPM** HARD LIMIT	**230lb-ft** 311Nm	**276bhp** 206kW

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.

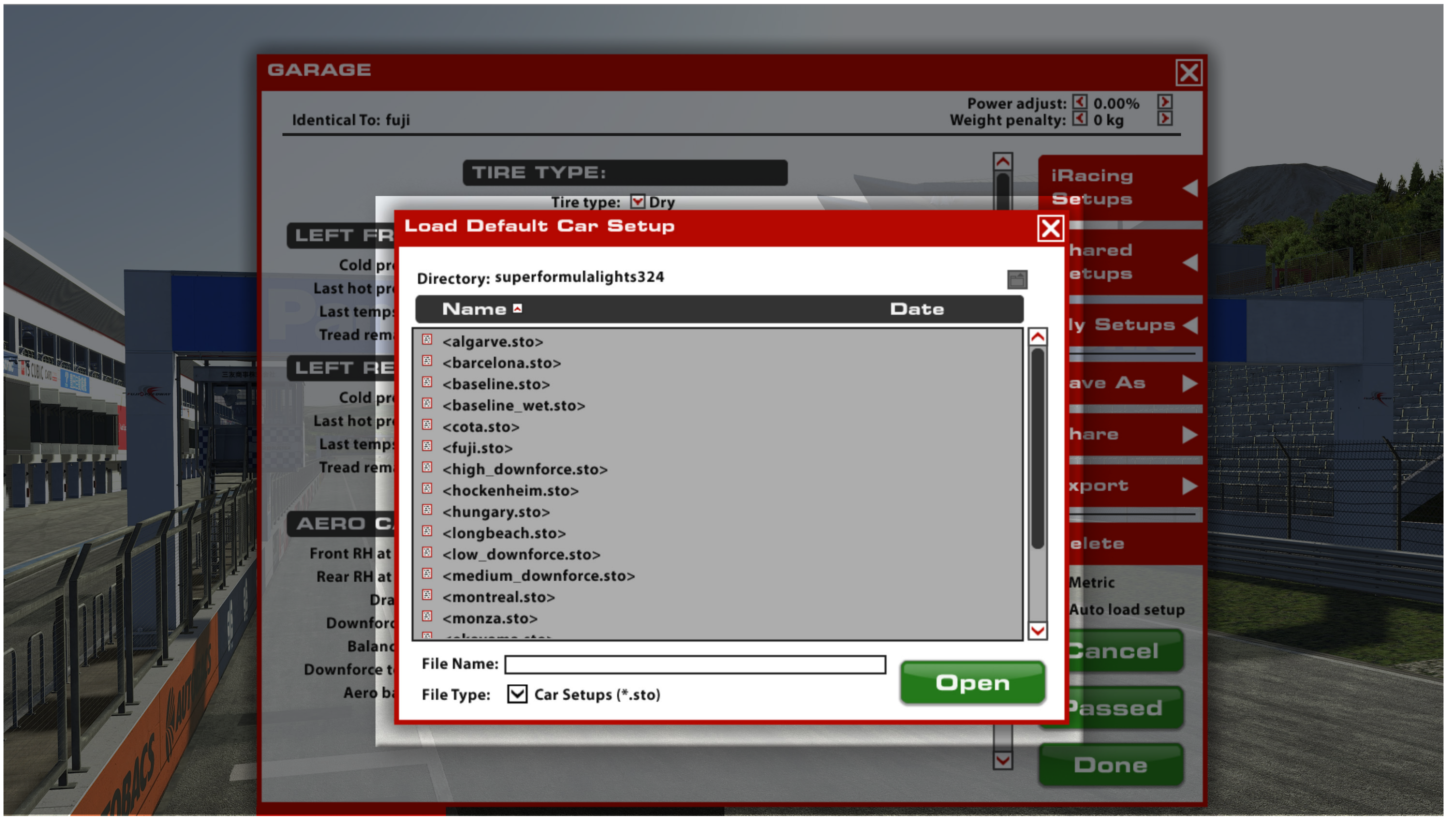
GETTING STARTED

Before starting the car, it is recommended to map controls for Brake Bias. While this is not mandatory, this will allow you to make quick changes to the brake bias to suit your driving while out on track.

Once you load into the car, getting started is as easy as pulling the "upshift" paddle to put it into gear, and hitting the accelerator pedal. This car uses a sequential transmission and does not require manual clutch operation to shift in either direction. However, the car's downshift protection will not allow you to downshift if it feels you are traveling too fast for the gear requested. If that is the case, the downshift command will simply be ignored.

Upshifting is recommended when the shift lights on the dashboard are all fully illuminated around 7000 rpm.

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.

DASH PAGES

The Super Formula Light features a digital display integrated into the steering wheel. Two pages provide information to the driver across two pages: Race and Diagnostics.

RACE

Laptime - Current lap time is shown across the top of the display

Last Lap - The previously completed lap time is on the left of the display

Lap # - Number of laps completed in the current

Gear - The currently-selected gear is shown in the center of the display

RPM - Current engine RPM

Water Temp - Engine cooling water temperature in °C or °F

DIAGNOSTIC

LEFT COLUMN

RPM - Engine RPM

Oil P - Engine Oil system pressure in PSI or Bar

Rail P - Fuel system pressure in PSI or Bar

Throttle - Throttle pedal position in percent

Batt - Current engine RPM

Gear - Engine cooling water temperature in °C or °F

CENTER COLUMN

Air T - Ambient air temperature in °C or °F

Water T - Engine cooling water temperature in °C or °F

Oil T - Engine oil temperature in °C or °F

Fuel T - Fuel temperature in °C or °F

Lambada - Current air/fuel mixture ratio

RIGHT COLUMN

Diff Time - Current lap time difference between the current lap and the best lap of the session

Current Lap - Current lap time

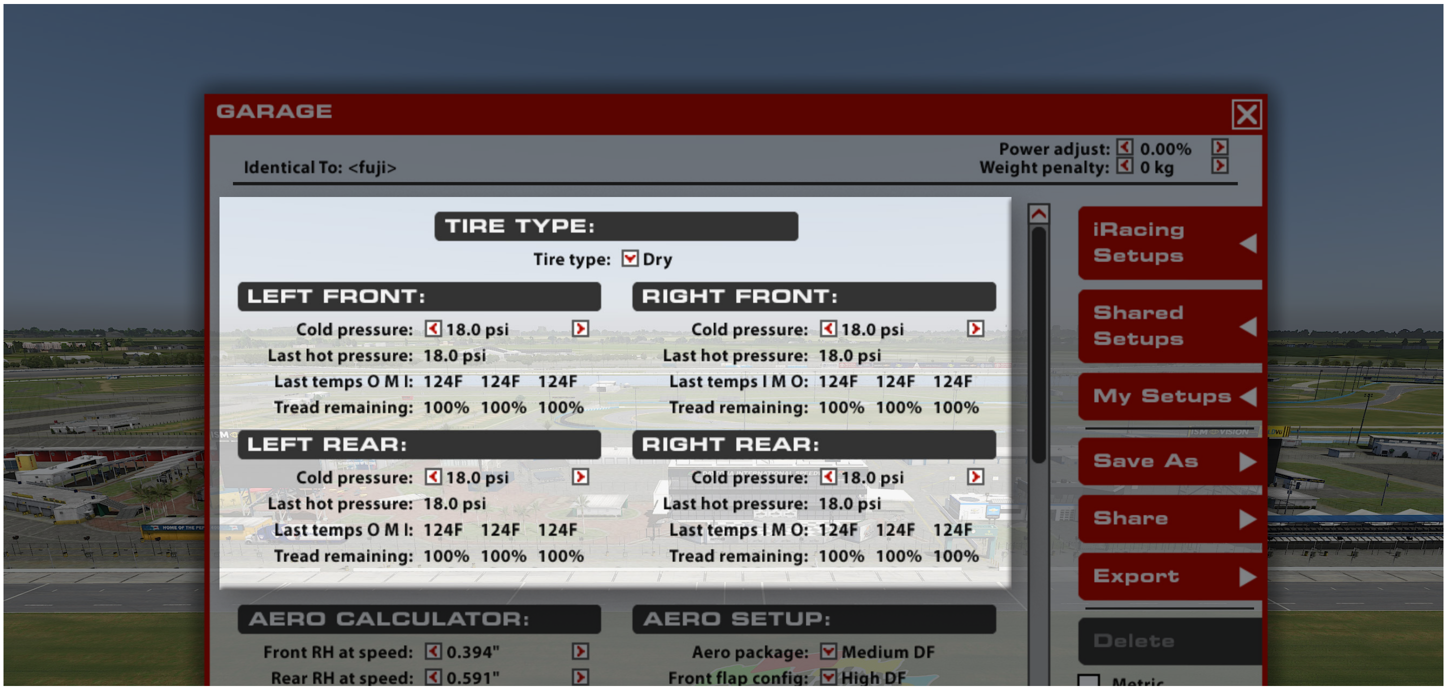
Last Lap - Previously completed lap time

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 & AERO

TIRE DATA



TIRE TYPE

Tires fitted to the Super Formula Light car can be changed based on weather conditions. The Dry option fits a slick tire intended for dry track conditions while the Wet option fits a treaded tire for wet track surfaces.

COLD 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 require higher pressures, while lower speeds and loads will see better performance from lower pressures. Cold pressures should be set to track characteristics for optimum performance. Generally speaking, it is advisable to start at lower pressures and work your way upwards as required.

LAST HOT 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. Careful attention should be paid to the Hot Pressures to extract the most performance out of the tires during a race.

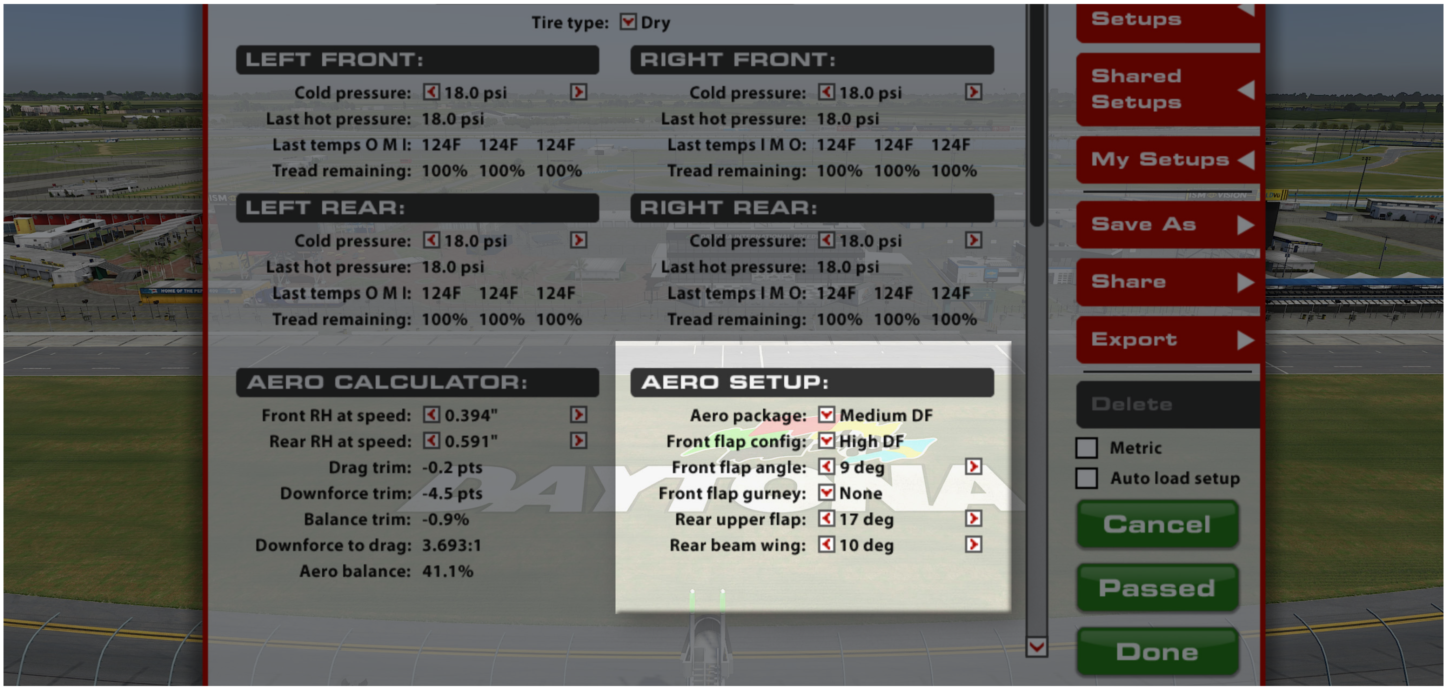
LAST TEMPERATURES

The temperatures measured in the garage are tire carcass temperatures measured within the tread rubber itself. Wheel Loads and the amount of work a tire is doing on the 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 and tire air pressure while on track.

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.

AERO SETUP



AERO PACKAGE

The Super Formula Light can use one of three overall aerodynamic packages to tailor the car to the needs of a given circuit. High DF will provide the most aerodynamic grip at the expense of drag, Low DF will trim away a large amount of drag but will be light on aerodynamic grip, while Medium DF will provide a moderate amount of both downforce and drag. Changing the Aerodynamic Package may also change the wing components and their setting limits, so keeping track of Aero Balance before and after changing this value is crucial to preventing unexpected results.

FRONT FLAP CONFIGURATION

The front wing upper flaps can be set to either a High DF or Low DF configuration. The High DF option will increase downforce and drag on the front wing, the Low DF option will reduce downforce and drag on the front wing. If High or Low DF is chosen in the Aero Package setting, only the flap that corresponds to the Aero Package can be used (Low DF Flap can't be used with the High DF Aero Package). If the Medium DF Aero Package is selected, either Front Flap can be used

FRONT FLAP ANGLE

The Flap Angle setting changes the angle of the front wing's upper flap elements relative to horizontal. Higher angles will increase the downforce generated at the front wing, shift aero forward, and increase drag, while lower angles will decrease downforce, shift aero rearward, and reduce drag.

FRONT FLAP GURNEY FLAP

A small wicker (or "Gurney Flap") can be added to the trailing edge of the front wing upper-most flap. If installed, downforce and drag from the front wing will increase significantly as well as a large shift forward for the Aero Balance. Options include a 5 or 10mm wicker, with the larger option producing a larger effect. The wicker can also be removed entirely resulting in a large reduction in drag as well as an aerodynamic balance shift towards the rear of the car.

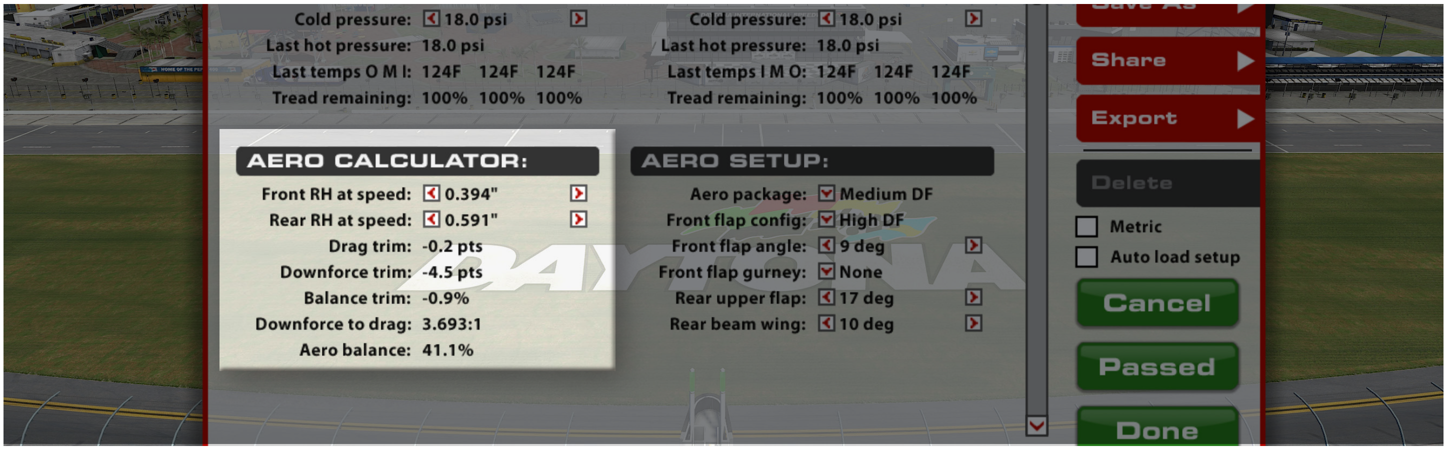
REAR UPPER FLAP ANGLE

The Rear Upper Flap Angle setting controls the angle of the rear wing's upper flap element. Higher angles will produce more downforce, more drag, and shift aero rearward, while lower angles will reduce both downforce and drag but shift aero forward.

REAR BEAM WING ANGLE

A lower element on the rear wing situated just above the axle, known as the Beam Wing, can be adjusted similarly to the upper elements to tune overall downforce and aerodynamic balance. Higher angles will increase overall downforce and shifts aero rearward, lower angles will shift aero forward and reduce overall downforce.

AERO CALCULATOR



The Aero Calculator is a quick way to get a general idea of the car's aero balance in the current configuration. Once the Front and Rear Aero settings have been chosen, the front and rear ride heights can be set to find the car's aero balance and Downforce-to-Drag ratio. This is very helpful for planning setup changes to either keep the same aerodynamic balance after a change or to understand how much the balance will shift with changes. Please note the settings chosen in this area of the garage do not affect the setup or on-track performance and are simply a way to understand how the car is performing.

FRONT RH AT SPEED

The Ride Height (RH) at Speed settings are inputs for the aero calculator to determine the approximate aero performance with the chosen aero package. Changing these values changes the displayed Front Downforce value as well as the Downforce-to-Drag ratio in the calculator. To check on-track performance, use the front ride height sensors (Front RH) and rear ride height sensors (Rear RH) found in telemetry output. These can also be changed to observe how rake will affect aerodynamic performance prior to ride height or spring changes.

REAR RH AT SPEED

The Front Downforce value represents the percentage of total downforce that is working on the front axle. This value is calculated with the At Speed ride height values, as well as the chosen aerodynamic options, and should be monitored during the chassis setup process to prevent unexpected results. To ensure chassis adjustments don't become masked by aerodynamic changes, always refer to this value to ensure it remains constant before and after aerodynamic setup changes.

DRAG TRIM

The Drag Trim value is a representation of how much drag is being generated by the vehicle, displayed as an offset of the base drag value. Higher values indicate a higher amount of drag on the car, lower values indicate less drag.

DOWNFORCE TRIM

The Downforce Trim value is a representation of how much downforce is being generated by the vehicle, displayed as an offset of the base downforce value. Higher values indicate a higher amount of overall downforce on the car, lower values indicate less downforce.

BALANCE TRIM

The Balance Trim value is a representation of how much the aerodynamic Center of Pressure has been shifted from the base value. Higher values indicate a shift forward, lower values indicate a rearward shift, but this value does not represent the actual aerodynamic balance for the given aero package.

DOWNFORCE TO DRAG

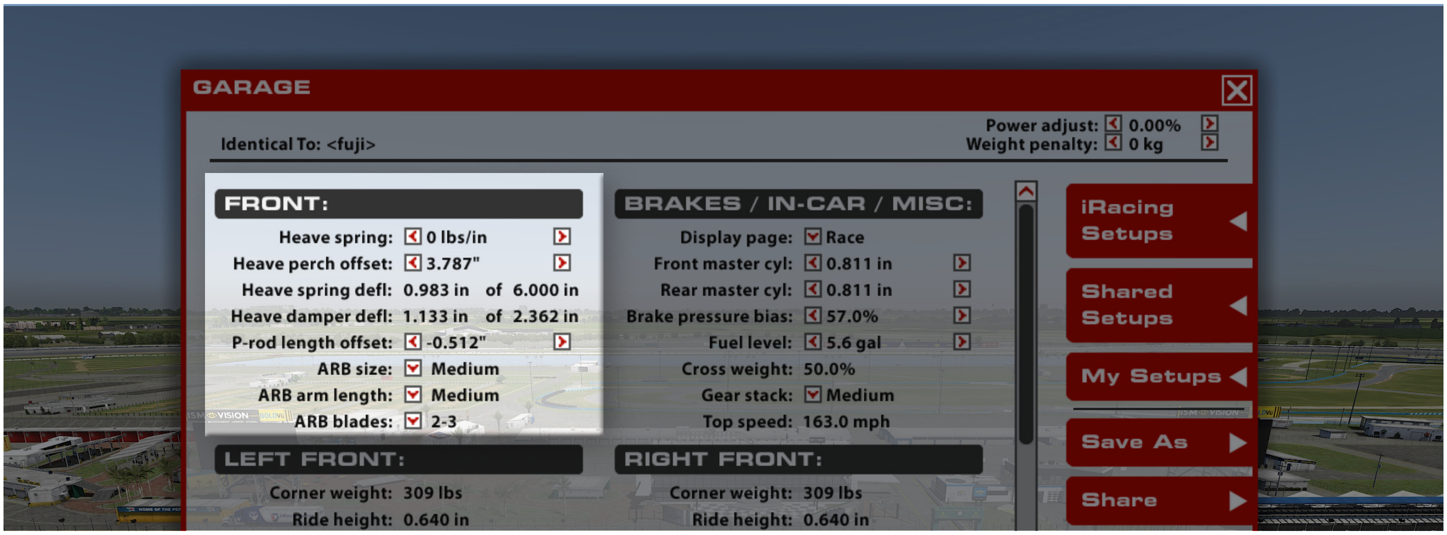
The Downforce to Drag ratio is a relation of how much downforce is produced for one unit of drag. Generally, a larger Downforce to Drag ratio would imply the car is working efficiently and producing large amounts of downforce for given drag numbers, while a lower Downforce to Drag value is typically seen on more slippery, low-drag aerodynamic packages.

AERO BALANCE

Aero Balance represents the percentage of total downforce that is working on the front axle. This value is calculated with the At Speed ride height and tilt values, as well as the chosen aerodynamic options, and should be monitored during the chassis setup process to prevent unexpected results. To ensure chassis adjustments don't become masked by aerodynamic changes, always refer to this value to ensure it remains constant before and after aerodynamic setup changes

CHASSIS

FRONT



HEAVE SPRING

The Heave Spring is a suspension element that handles loads when the chassis moves in a purely vertical direction and does not experience loads generated from chassis roll. The front Heave Spring will influence the chassis' handling balance during braking and over bumps, but is primarily intended to control increasing aerodynamic loads with higher speeds. Stiffer Heave Spring rates will stiffen the suspension in vertical travel and result in a more consistent aerodynamic platform but can reduce mechanical grip over rough surfaces. Softer Heave Springs will increase mechanical grip but could allow too much movement to keep the aerodynamic behavior consistent.

HEAVE PERCH OFFSET

The Heave Perch Offset is a way to preload the Heave Spring element, allowing front ride height changes without inducing any asymmetric loading to the suspension. Decreasing the value will preload the Heave spring and raise the front ride heights, increasing the value will unload the spring and lower the front ride heights.

HEAVE SPRING DEFL

The Heave Spring Deflection is how much the Heave Spring has compressed from its free (unloaded) length. This is not directly adjustable, but is altered as a result of other front suspension adjustments, especially the Heave Perch Offset setting but can be altered by the corner spring settings as well. Higher deflection indicates the spring is under higher pre-load, lower deflection indicates a more relaxed spring.

HEAVE DAMPER DEFL

The Heave Damper Deflection is an indicator of how much travel is available in the Heave element before bottoming out. This value doesn't represent any loading in the suspension, only the Heave Damper's position.

PUSHROD LENGTH OFFSET

The front Pushrods can be lengthened or shortened to change ride height without affecting the preload on the front spring components. Before using this adjustment, ensure both corner springs and the front Heave spring are set to the desired value, then adjust the front ride height with the pushrod length. Longer pushrods will raise the front ride height, shorter pushrods will reduce front ride height.

ARB SIZE

The Anti-Roll Bar (ARB) is a spring device in the front suspension that counteracts roll movement but not vertical loading. Changing the ARB diameter will alter the front suspension's roll stiffness and handling balance: Stiffer ARB settings will increase front roll stiffness and induce understeer, softer ARB settings will reduce stiffness and reduce understeer. Disconnecting the bar will remove the ARB from the suspension entirely and can greatly reduce mechanical understeer, however this reduction in roll stiffness can hurt aerodynamic performance in high-speed corners.

ARB ARM LENGTH

The ARB Arm Length option changes how long the ARB assembly arms are. Longer arms result in a softer ARB assembly and less stiffness in roll, inducing oversteer. Shorter arms stiffen the front suspension in roll, inducing understeer.

ARB BLADES

The ARB Blades (or arms) can be changed to further tune the suspension roll stiffness beyond only the ARB size setting. This option changes the orientation of the ARB blades and are given numerical values for simplicity, with #1 being the softest option and the blades becoming stiffer as the value is increased to the maximum setting of #5. Based on stiffness the blade option will produce the same result as a similar adjustment to the ARB Size: Stiffer blade settings will increase front roll stiffness and induce understeer while softer blade settings will reduce front roll stiffness and reduce understeer. This setting can be adjusted in the car from the F8 black box using the “FARB” setting.

BRAKES / IN-CAR / MISC

DISPLAY PAGE

This sets the default page on the steering wheel’s display when the car is started. This has no effect on car performance.

FRONT MASTER CYLINDER

The Front Brake Master Cylinder size can be changed to alter the line pressure to the front brake calipers. A larger master cylinder will reduce the line pressure to the front brakes, which will shift the brake bias rearwards and increase the pedal effort required to lock the front wheels. A smaller master cylinder will increase brake line pressure to the front brakes, shifting brake bias forward and reducing required pedal effort to lock the front wheels.

REAR MASTER CYLINDER

The Rear Brake Master Cylinder size can be changed to alter the line pressure to the rear brake calipers. A larger master cylinder will reduce the line pressure to the rear brakes, which will shift the brake bias forwards and increase the pedal effort required to lock the rear wheels. A smaller master cylinder will increase brake line pressure to the rear brakes, shifting brake bias rearward and reducing required pedal effort to lock the rear wheels.

BRAKE PRESSURE BIAS

The Brake Pressure Bias setting determines how much of the overall brake line pressure is sent to the front wheels. Higher percentages apply more braking pressure to the front wheels, which can induce understeer under braking, while reducing the percentage will shift braking force rearward and induce oversteer under braking. If the bias is set too far forward or rearward it can cause wheel lockups under heavy braking, so it should be set to a value that allows for heavy braking without lockups on either axle.

FUEL LEVEL

The amount of fuel in the fuel tank when the car is loaded into the world.

CROSSWEIGHT

Crossweight is the percentage of the car’s total weight situated over the Right-Front and Left-Rear wheels. Higher Cross Weight values will induce understeer in left-hand corners and oversteer in right-hand corners. Lower Cross Weight values will induce oversteer in left-hand corners and understeer in right-hand corners.

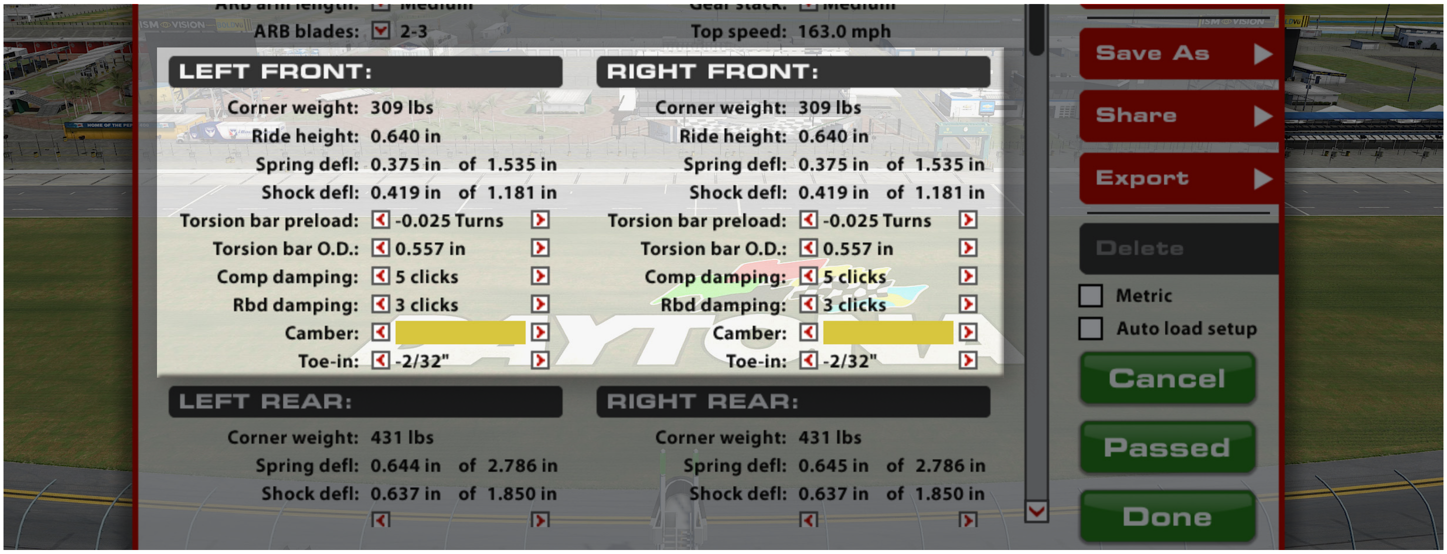
GEAR STACK

Five sets of drive gear are available to help tune the car for different track types. Shorter gear stacks will improve acceleration at the expense of top speed, longer gear options will increase top speed at the expense of acceleration. Generally a track with tighter corners and lower speeds will benefit from a shorter gear stack while a track with high speeds and flowing corners will see better performance from a longer gear stack.

TOP SPEED

The estimated top speed achievable from the currently-selected gear stack.

FRONT CORNERS



CORNER WEIGHT

Corner Weight represents the weight on each wheel when sitting in the garage. This can be used to visualize the weight distribution under static conditions and help with identifying changes to weight distribution through the setup process.

RIDE HEIGHT

Front Ride Height is a measurement from the ground to point on the bottom of the chassis. Since this value doesn't necessarily represent the lowest point on the chassis it does not specifically represent the chassis' ground clearance, but is instead a reference for setup and aero work. It is important to have the front ride height low for both aero and mechanical grip, but high enough that the chassis doesn't make significant contact with the race track over the course of a lap. Raising and lowering the front ride height will affect aerodynamic balance, overall downforce levels, and drag, so consult the Aero Calculator to see how a ride height change will influence handling when changing this value

SPRING DEFL

Spring Deflection is how much the primary ride spring has compressed from its fully extended length while under static conditions in the garage. Useful for determining how much preload a spring is under.

SHOCK DEFL

Shock Deflection is how much the shock has compressed from its fully extended length while under static conditions in the garage. This is useful for determining how much shock travel is available before the shock springs and packers are engaged on the shock body.

TORSION BAR PRELOAD

Used to adjust ride height and corner weight, adjusting this setting applies a preload to the torsion bar under static conditions. Decreasing the value increases preload on the torsion bar, 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.

TORSION BAR OUTER DIAMETER

The Torsion Bar Outer Diameter changes the size, and thus the stiffness, of the front suspension torsion bars, which are used as spring elements. Springs are used to keep the chassis from contacting the track under the loads seen on track and to manage the chassis' aerodynamic attitude, but their stiffness also has a major influence on the car's handling characteristics. On the front end, stiffer springs (larger Outer Diameter) can keep the front wing from moving too much under increasing aerodynamic loads but will decrease mechanical grip and can cause understeer in slower corners. Softer springs will result in more front end movement, which can hurt aero, but will increase mechanical grip in the front axle and reduce understeer (or cause oversteer, in extreme cases). Larger diameters will be stiffer, smaller diameters will be softer.

COMPRESSION DAMPING

Compression Damping affects how resistant the shock is to compression (reduction in length) when the shock is moving at relatively low speeds, usually in chassis movements as a result of driver input (steering, braking, & throttle) and cornering forces. Higher values will increase compression resistance and transfer load onto a given tire under these low-speed conditions more quickly, inducing understeer. Lower values will slow weight transfer to a tire, reducing understeer when applied to the front shocks.

REBOUND DAMPING

Rebound Damping controls the stiffness of the shock while extending at lower speeds, typically during body movement as a result of driver inputs. Higher rebound values will resist expansion 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 expand enough to maintain proper contact with the track. When tuning for handling, higher front low-speed rebound can increase on-throttle mechanical understeer (but reduce splitter lift) while lower values will maintain front end grip longer, helping to reduce understeer, but will allow more splitter lift. Excessive front rebound can lead to unwanted oscillations due to the wheel bouncing off of the track surface instead of staying in contact.

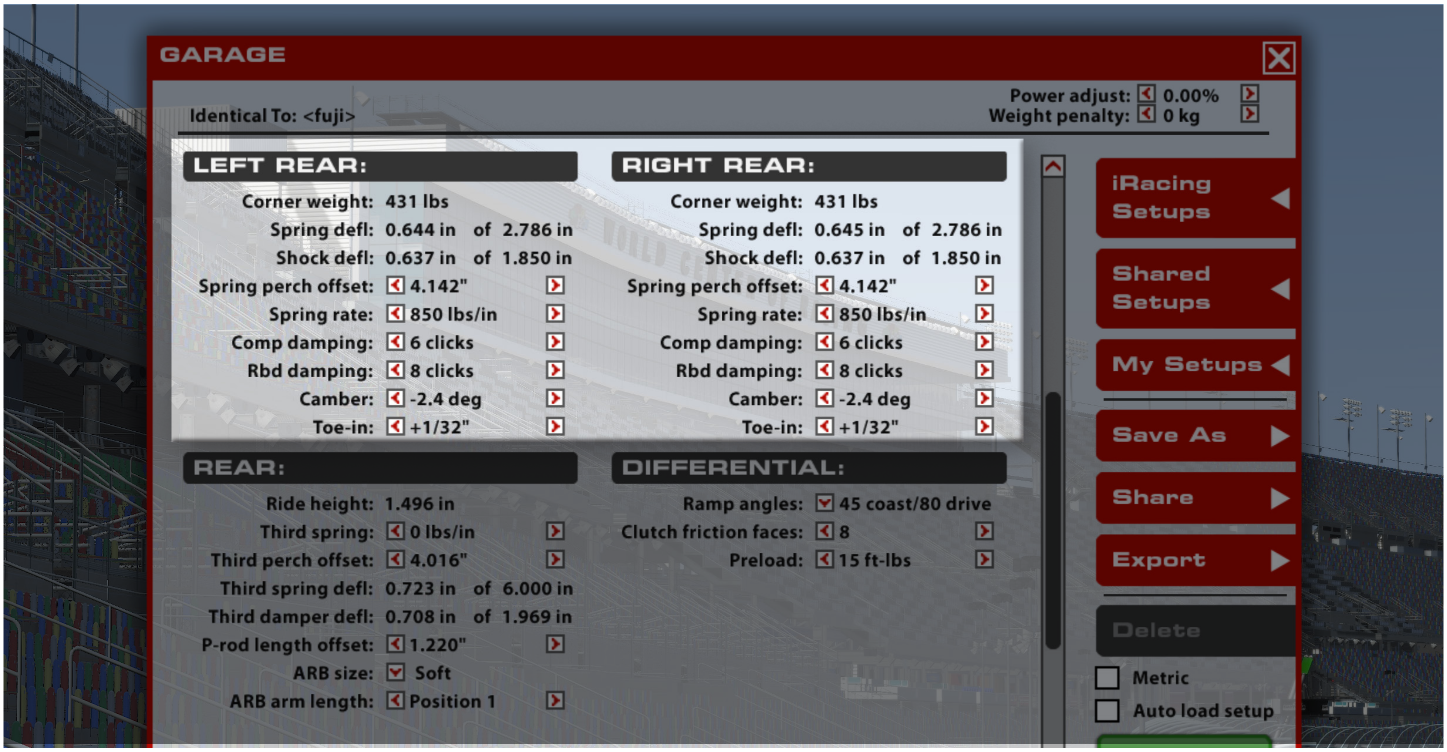
CAMBER

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. Due to suspension geometry and corner loads, negative camber is desired on all four wheels. Higher negative camber values 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. Increasing front camber values will typically result in increased front axle grip during mid to high speed cornering but will result in a loss of braking performance and necessitate a rearward shift in brake bias to compensate.

TOE-IN

Toe is the angle of the wheel, viewed from vertical, relative to the chassis centerline. Toe-in is when the front of the wheels are closer to the centerline while Toe-out is when the front of the wheels are farther from the centerline than the rear of the tires. On the front end, Toe will alter how quickly the tires respond to steering inputs and influence how stable the car is in a straight line. Toe-out settings (negative garage value) will increase turn-in response and make the car less stable in a straight line, while Toe-in (positive garage value) will increase straight-line stability while making initial steering response more sluggish.

REAR CORNERS



CORNER WEIGHT

Corner Weight represents the weight on each wheel when sitting in the garage. This can be used to visualize the weight distribution under static conditions and help with identifying changes to weight distribution through the setup process.

SPRING DEFL

Spring Deflection is how much the primary ride spring has compressed from its fully extended length while under static conditions in the garage. Useful for determining how much preload a spring is under

SHOCK DEFL

Shock Deflection is how much the shock has compressed from its fully extended length while under static conditions in the garage. This is useful for determining how much shock travel is available before the shock springs and packers are engaged on the shock body.

SPRING PERCH OFFSET

Used to adjust ride height and corner weight, adjusting this setting applies a preload to 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 aerodynamic attitude under changing wheel loads, stiffer springs will maintain the car's aero platform better while sacrificing mechanical grip. Softer springs will deal with bumps better and increase mechanical grip, but will cause the car's aerodynamic platform to suffer. Due to homologation rules, rear spring rates must be symmetrical across the rear axle and can only be changed in pairs.

COMPRESSION DAMPING

Low Speed Compression affects how resistant the shock is to compression (reduction in length) when the shock is moving at relatively low speeds, usually in chassis movements as a result of driver input (steering, braking, & throttle) and cornering forces. Higher values will increase compression resistance and transfer load onto a given tire under these low-speed conditions more quickly, inducing understeer on throttle application.

REBOUND DAMPING

Low Speed Compression affects how resistant the shock is to compression (reduction in length) when the shock is moving at relatively low speeds, usually in chassis movements as a result of driver input (steering, braking, & throttle) and cornering forces. Higher values will increase compression resistance and transfer load onto a given tire under these low-speed conditions more quickly, inducing understeer on throttle application.

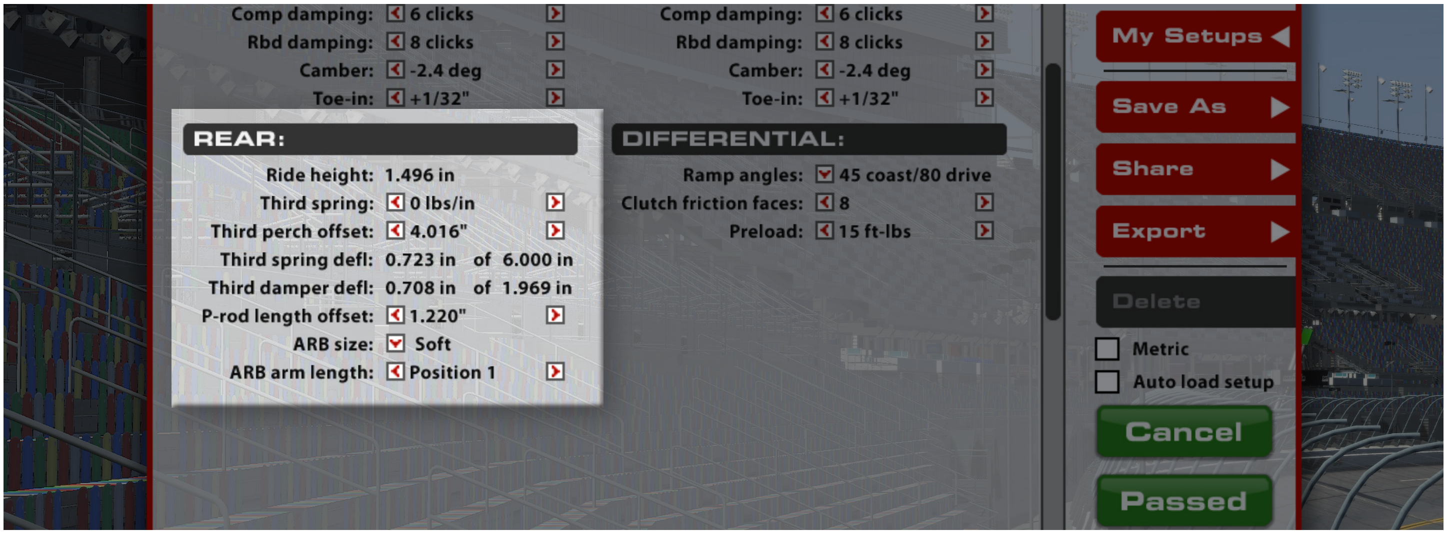
CAMBER

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. Due to suspension geometry and corner loads, negative camber is desired on all four wheels. Higher negative camber values will increase the cornering force generated by the tire, but will reduce the amount of 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. Higher rear camber values can increase cornering stability but reduce stability under braking.

TOE-IN

Toe is the angle of the wheel, when viewed from above, relative to the centerline of the chassis. Toe-in is when the front of the wheel is closer to the centerline than the rear of the wheel, and Toe-out is the opposite. On the rear end, adding toe-in will increase straight-line stability but may hurt how well the car changes direction.

REAR



RIDE HEIGHT

Rear Ride Height is a measurement from the ground to a reference point on the chassis along the centerline of the car. Since this value doesn't necessarily represent the lowest point on the chassis it does not specifically represent the chassis' ground clearance, but is instead a reference for setup and aero work. Raising and lowering the rear ride height will affect aerodynamic balance, overall downforce levels, and drag, so consult the Aero Calculator to see how a ride height change will influence handling when changing this value.

THIRD SPRING

The Third Spring is a spring element configured to provide resistance only in vertical suspension movement without affecting roll stiffness. This spring element is helpful with controlling increasing aerodynamic loads and maintaining the proper aerodynamic attitude around a circuit. The rear end's third spring is crucial in maintaining and controlling the rear ride height around a circuit to maximize the downforce produced by the rear bodywork.

THIRD PERCH OFFSET

Changes the static load of the third spring via an adjustable spring perch. This is used to alter the overall front end ride height.

THIRD SPRING DEFL

The Third Spring Deflection is how much the rear Third Spring has compressed from its free (unloaded) length. This is not directly adjustable, but is altered as a result of other rear suspension adjustments, especially the Third Perch Offset setting but can be altered by the corner spring settings as well. Higher deflection indicates the spring is under higher pre-load, lower deflection indicates a more relaxed spring.

THIRD DAMPER DEFL

The Third Damper Deflection is an indicator of how much travel is available in the rear Third Spring element before bottoming out. This value doesn't represent any loading in the suspension, only the Third Damper's position.

PUSHROD LENGTH OFFSET

The rear Pushrods can be lengthened or shortened to change ride height without affecting the preload on the front spring components. Before using this adjustment, ensure both corner springs and the rear Third spring are set to the desired value, then adjust the rear ride height with the pushrod length. Longer pushrods will raise the rear ride height, shorter pushrods will reduce rear ride height.

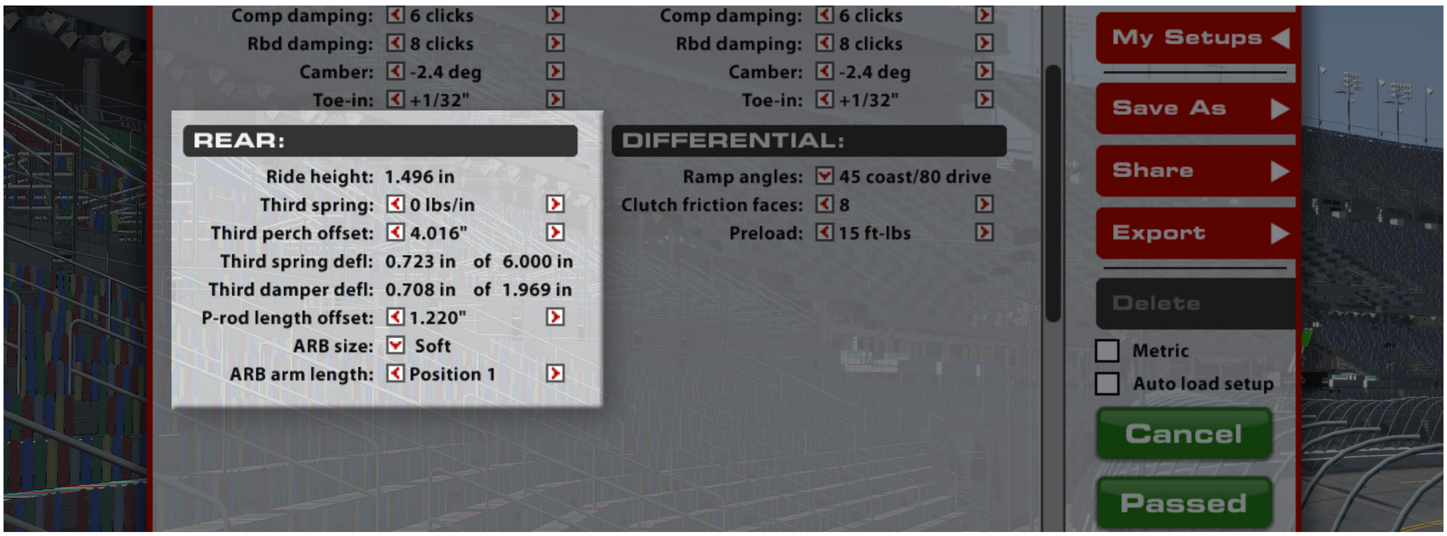
ARB SIZE

The ARB (Anti-Roll Bar) size influences the stiffness of the front suspension in roll, such as when navigating a corner. Increasing the ARB size will increase the roll stiffness of the front suspension, resulting in less body roll but increasing mechanical understeer. This can also, in some cases, lead to a more responsive steering feel from the driver. Conversely, reducing the ARB size will soften the suspension in roll, increasing body roll but decreasing mechanical understeer. This can result in a less-responsive feel from the steering, but grip across the rear axle will increase.

ARB ARM LENGTH

The ARB Arm Length option changes how long the ARB assembly arms are. Longer arms result in a softer ARB assembly and less stiffness in roll, inducing understeer. Shorter arms stiffen the front suspension in roll, inducing oversteer.

DIFFERENTIAL



RAMP ANGLES

The Ramp Angles are a way to tune the differential locking on deceleration and acceleration with various configurations. The Ramp Angle values are split between “coast”, or deceleration, and “power”, or acceleration. Lower angle values will have more locking force for the situation that it is associated with, while higher angle values will have less locking force. For the “coast” adjustment, more locking force (lower ramp angles) will increase understeer while less locking force (higher angles) will increase oversteer. On the “power” side, more locking force will add oversteer on throttle and less locking force will increase understeer. Since these adjustments are somewhat independent of one another and can be chosen independently, this is a great way to fine-tune corner entry and exit once the whole corner has been tuned with the Preload and Friction Faces number.

CLUTCH FRICTION FACES

The differential Clutch Friction Faces are a way to greatly increase the forces from the differential that attempt to keep the two rear axles locked in sync. The number of clutch faces used will multiply the locking force by the number of faces in use when compared to a single set of friction faces. For example, 4 friction faces will have 4 times the locking force of one face, 12 will have 12 times the force of one face, etc. Higher locking forces (more friction faces) will increase the amount of understeer seen when off the throttle under deceleration for corner entry, but will increase oversteer on exit when applying the throttle. Fewer faces will increase oversteer on corner entry while decelerating but add understeer when applying the throttle.

PRELOAD

Differential Preload is a static amount of locking force that is always present in the differential regardless of acceleration or deceleration. Increasing the preload will add understeer under braking but oversteer on throttle application, while decreasing preload will add oversteer under braking but understeer on throttle application.

SETUP TIPS

If the setup fails tech inspection, it is likely either the ride heights that will require adjustment. This is performed by using the P-rod Length Offset at either end of the car. Right clicks (positive) will increase the ride height while left clicks (negative) will reduce the ride height. In the iRacing Setups folder you will find a variety of setups:

Baseline is a 50% fuel load setup in maximum downforce configuration intended to be safe and versatile for newcomers to the car. This setup will pass tech inspection at all possible fuel loads but does not offer maximum performance.

Low, Medium and High Downforce setups are 50% fuel load setups intended for use when no track specific setup exists.

Setups labeled '_wet' have wet tyres pre-fitted and setup adjustments to suit wet conditions.

Track specific setups are intended for use in the weekly Super Formula Lights series. They are fueled to safely make the finish in both the fixed and open series.

Should you wish to drive at a track not listed it is recommended to start out with the High Downforce setup first before evaluating the other downforce level options.

This car has third and heave springs, which allow you to adjust pitch motion (and dynamic ride heights) without affecting roll stiffness. These will have a major effect on pitch motion. Use these in conjunction with the front torsion bars and rear springs to set the dynamic ride heights of the car.

In this car, it's generally best to run the front of the car as low as possible to generate more downforce.

AERODYNAMIC BALANCE

There are two parts to setting the correct aerodynamic balance for your car: the options that affect aerodynamic balance directly in the garage (wing angles and garage ride heights) as well as options that affect the car's dynamic ride heights at speed (springs, torsion bars) and transient motions (dampers). These settings all interact to determine what overall aero balance the car has through different types of corners.

Keep in mind that aero balance is still in effect in low-speed corners - although its effect is lessened, it will have an impact on what you feel.

Also, consider that some options that affect aero balance, particularly those that affect the car's dynamic ride heights, will also have an effect on roll behavior and therefore mechanical balance. For example, softening the front torsion bars will allow the front to sink lower at speed. This increases the difference between front and rear ride heights which pushes aero balance further forward (more oversteer) while also lowering the total roll resistance of the front as if you had softened the anti-roll bar.

On the other hand, third and heave springs (and their corresponding dampers) only affect pitch motion of the car. These are used to tweak dynamic ride heights without affecting roll behavior or general mechanical balance.

MECHANICAL BALANCE

Options that affect the chassis roll stiffness (anti-roll bars, springs, and dampers in transient motions) and differential settings play into what is felt as mechanical balance.

As you are adjusting roll stiffness, be aware of the total roll stiffness as well as the balance between front and rear roll stiffness. The balance between front and rear stiffness can be felt as balance shifts between turn-in and on-throttle behavior, while total roll stiffness affects the car's overall responsiveness and pliableness while turning.

GEAR STACK

You should endeavor to use the shortest gear stack that you can without resulting in over revving the engine in 6th gear on the longest straight. There is a top speed calculated for each gear stack to assist you with this selection. Shorter gears will produce significantly better acceleration but have a lower ultimate top speed.

TIRE CONTACT PATCH

The last main piece of the puzzle is the tire contact patch. Settings that affect the tire contact patch (camber and toe) behave mostly independently of other settings, which makes them easy to tweak at any point along the setup process. However, they can be difficult to optimize if other parts of the car's balance are inducing undesirable behaviors.

FINAL NOTE

As you make changes to each setup option, it is likely that you will reach a point where you are unsure if a change is helping the car's balance or not. That often happens when another option is inducing an undesirable behavior and covering up details of the option you are currently adjusting. When this happens, try experimenting with another setting and see if it is more effective in optimizing the car's balance.