STREET STOCK

USER MANUAL

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DEAR iRACING USER,

We hope you enjoy the Street Stock, one of the many free cars that comes with your iRacing subscription. 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!

When it comes to grass-roots racing, it doesn't get any more "rooted" than Street Stocks. Although there are (nearly) as many different variations on Street Stock rules as there are quarter- and half-mile race tracks around America, the common thread is the use of an older American street car as the basis of the Street Stock race car.

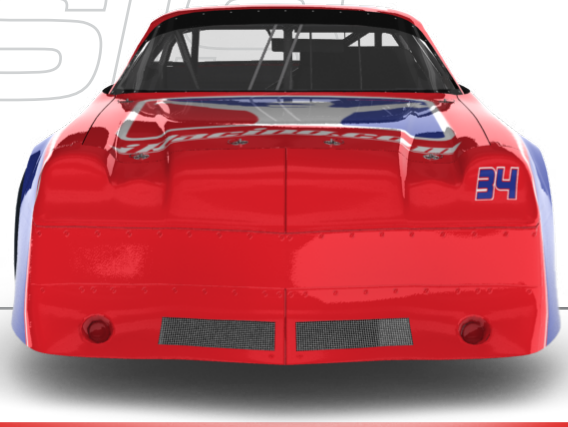
Depending on the race track and its rules (and your budget), Street Stocks range from little more than a street car with its interior gutted, its windows removed and a rudimentary roll cage installed to a full-on race car with a highly-tuned engine, upgraded suspension and plastic bodywork conforming to the shape of the original street car. (iRacing's Street Stock is built to the full-on race car rules).

Regardless of the specific rules, turning a street car into a Street Stock is not only less expensive than buying a purpose-built race car, the process of building a race car from a street car helps wanna-be race drivers and mechanics learn the fundamentals of race car construction, maintenance and setups. And learning is what it's all about, for Street Stocks is the class to learn the basics of stock car racing.

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 continued support, 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
5207mm	2007mm	2667mm	1372kg	1520kg
205in	79in	105in	3025lbs	3350lbs

POWER UNIT

NATURALLY ASPIRATED STEEL BLOCK PUSHROD V8

DISPLACEMENT	RPM LIMIT	TORQUE	POWER
5.8Liters	7600RPM	360lb-ft	320bhp
358CID		488Nm	238kW

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.

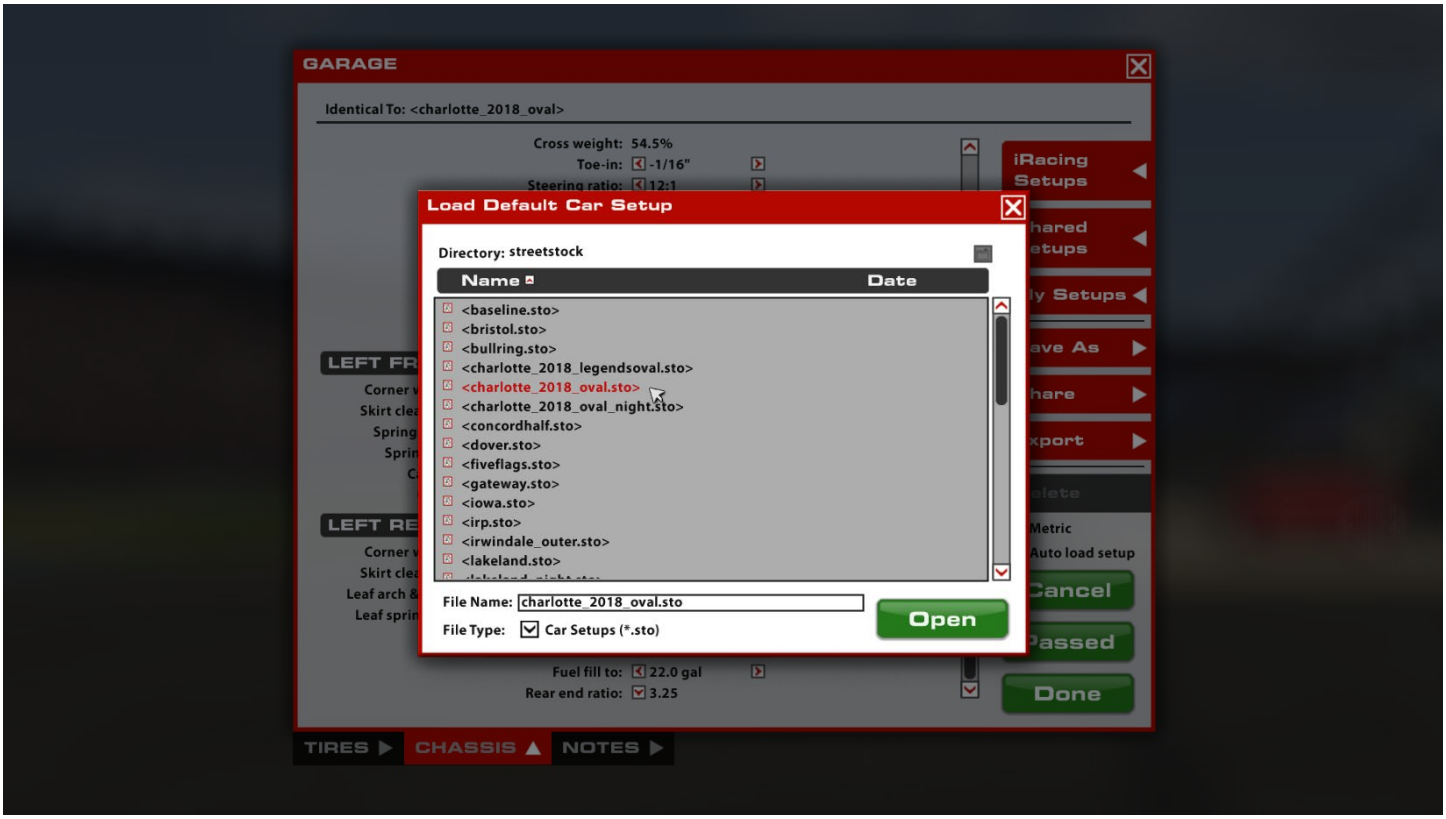
Before diving into chassis adjustments, though, it is best to become familiar with the car and track. To that end, we have provided baseline setups for each track commonly raced by these cars. To access the baseline setups, simply open the Garage, click iRacing Setups, and select the appropriate setup 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, select 1st gear. Slowly release the clutch while applying the throttle to drive away. The Street Stock features a four-speed manual transmission that can be shifted without the use of a clutch, but it is faster to do so. To upshift, let off the throttle and depress the clutch, then select the next higher gear. Once the next gear is selected, release the clutch and apply the throttle. Upshifting is recommended when the red shift light on the dash illuminates at high RPM. To downshift, depress the clutch while selecting the next lower gear. If downshifting quickly, it is recommended to blip the throttle just prior to releasing the clutch to prevent a mismatch of engine and wheel speed, which can lead to wheel hop and a 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.

Dash Configuration

The dash in the Street Stock is straightforward and conventional, featuring only three gauges and a shift light. Listed from left to right on the dash:

DIALS & GAUGES

TACHOMETER

Displays Engine RPM in 1000rpm increments. Above and to the left of the tachometer is the shift light, which will light up when the engine is at the ideal RPM for upshifting.

OIL PRESSURE

Displays the pressure in the engine oil system in pounds-per-square-inch. This should be between 45 and 65 psi during normal operation.

WATER TEMP

Displays the temperature of the water in the engine coolant system.

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 SETTINGS

COLD AIR PRESSURE

Air pressure in the tire when the car is loaded into the world. Higher pressures will reduce rolling drag and heat buildup, but will decrease grip. Lower pressures will increase rolling drag and heat buildup, but will increase grip. Higher speeds and loads will require higher pressures, while lower speeds and loads will see better performance from lower pressures. Cold pressures should be set to track characteristics for optimum performance.

HOT AIR PRESSURE

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

TIRE TEMPERATURE

This represents the tire carcass temperatures (measured via Pyrometer) once the car has returned to 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 (predominantly camber) while on track. These values are measured in three zones across the tread of the tire. Inside, middle and Outer.

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.

STAGGER

Stagger is the difference in circumference of the left- and right-side tires with both front and rear stagger available as an adjustment in the street stock. Increasing the front stagger will increase the size of the right-front tire and add understeer on deceleration and turn-in. Increasing the rear stagger will increase the size of the right-rear tire and add oversteer through the center and on throttle out of the corner. Stagger can be set independently between front and rear to suit various driving styles.

Chassis

FRONT

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. For an oval car, Cross Weight is one of the most influential settings for grip level while the vehicle is turning. Higher Cross Weight values will place more weight on the left-rear and right-front, both stabilizing entry and helping drive-off on corner exit, but excessive crossweight could prevent the car from rotating through the center. 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.

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 due to increased slip angle, but at the cost of increased tire temperature and wear.

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. Positive values will rotate the steering wheel to the right, negative values will rotate the wheel to the left.

BRAKE BALANCE BAR

The Brake Balance Bar adjustment controls Brake Bias, or 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 driver preference, track conditions, and also may need adjustment during a race to get the optimum braking performance for a given situation.

SWAY BAR SIZE

The Sway Bar Size is the outer diameter of the front sway bar and affects the roll stiffness of the front suspension. Increasing the diameter of the sway bar 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. Smaller bars will reduce the roll stiffness of the suspension but can increase mechanical grip in the front end, increasing oversteer.

LEFT BAR END CLEARANCE

The Left Bar End Clearance sets how far the left-side sway bar arm must travel before engaging the suspension and loading the sway bar, as in the case of a "slapper"-style bar. A positive clearance signifies a gap between the suspension and the sway bar arm, meaning the suspension must move freely before loading the bar. A negative value signifies the bar is in contact with the suspension and is being loaded, thus giving the bar a static preload. Positive clearances can be used to reduce bar load, especially on the straights to keep the front end lower, while negative values (bar preload) can be helpful in preventing the bar from unloading in situations where that is not desirable.

ATTACH LEFT SIDE

When checked, the Attach Left Side option will place a solid connection between the left-side sway bar arm and the suspension, loading the bar in all situations. When unchecked, the bar behaves as a "slapper"-style bar, and will only load in left-hand turns.

BAR PRELOAD

The Bar Preload is the static load in the sway 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.

SKIRT CLEARANCE

The Skirt Clearance is a representation of how far the bottom of the front valence is from the ground. This value is essentially a fifth ride height requirement and must be above 5 inches to pass tech inspection.

FRONT 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 setting.

SKIRT CLEARANCE

The Skirt Clearance is the distance from ground to the bottom of the door panel, or skirt. Front heights are measured just behind the front wheels at the lowest point on 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 since some components may be lower, but instead provide a reliable value for the height of the car off of the race track at static values. Adjusting Skirt Clearance is key for optimum performance, as they can directly influence the vehicle's aerodynamic performance as well as mechanical grip. While changing ride heights will affect handling, front heights should be set to get the car as low as possible without contacting the racing surface.

SPRING PERCH

Spring Perch is used to adjust ride height (skirt clearance) and corner weight by changing 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.

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.

CASTER

Caster is 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 by loading the inside front tire with steering input, as well as adding straight-line stability. Running less caster on the left-front than the right-front will cause the vehicle to pull to the left, a desirable effect on ovals.

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 setting.

SKIRT CLEARANCE

The Skirt Clearance is the distance from ground to the bottom of the door panel, or skirt. Rear heights are measured just in front of the rear wheels at the lowest point on 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 since some components may be lower, but instead provide a reliable value for the height of the car off of the race track at static values. Adjusting Skirt Clearance is key for optimum performance, as they can directly influence the vehicle's aerodynamic performance as well as mechanical grip. Rear heights can be increased to produce more aerodynamic downforce at high speeds, while lowering the rear heights can help with traction in slower corners.

LEAF ARCH & BLOCK

The Leaf Arch & Block adjustment is used to change the preload on the rear springs, and thus change the ride height on either rear corner. Increasing the size of the Leaf Block will lower that corner's ride height and reduce spring preload, while reducing the size of the Leaf Block will raise that corner's ride height and increase spring preload.

LEAF SPRING RATE

Leaf 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.

REAR

FUEL FILL TO

This selects the amount of fuel in the fuel tank when the car leaves the garage.

REAR END RATIO

The Rear End Gear Ratio is the ratio between the driveshaft pinion and the differential ring gear. Higher number values produce better acceleration but reduce top speed, lower number values reduce acceleration but result in a higher top speed.