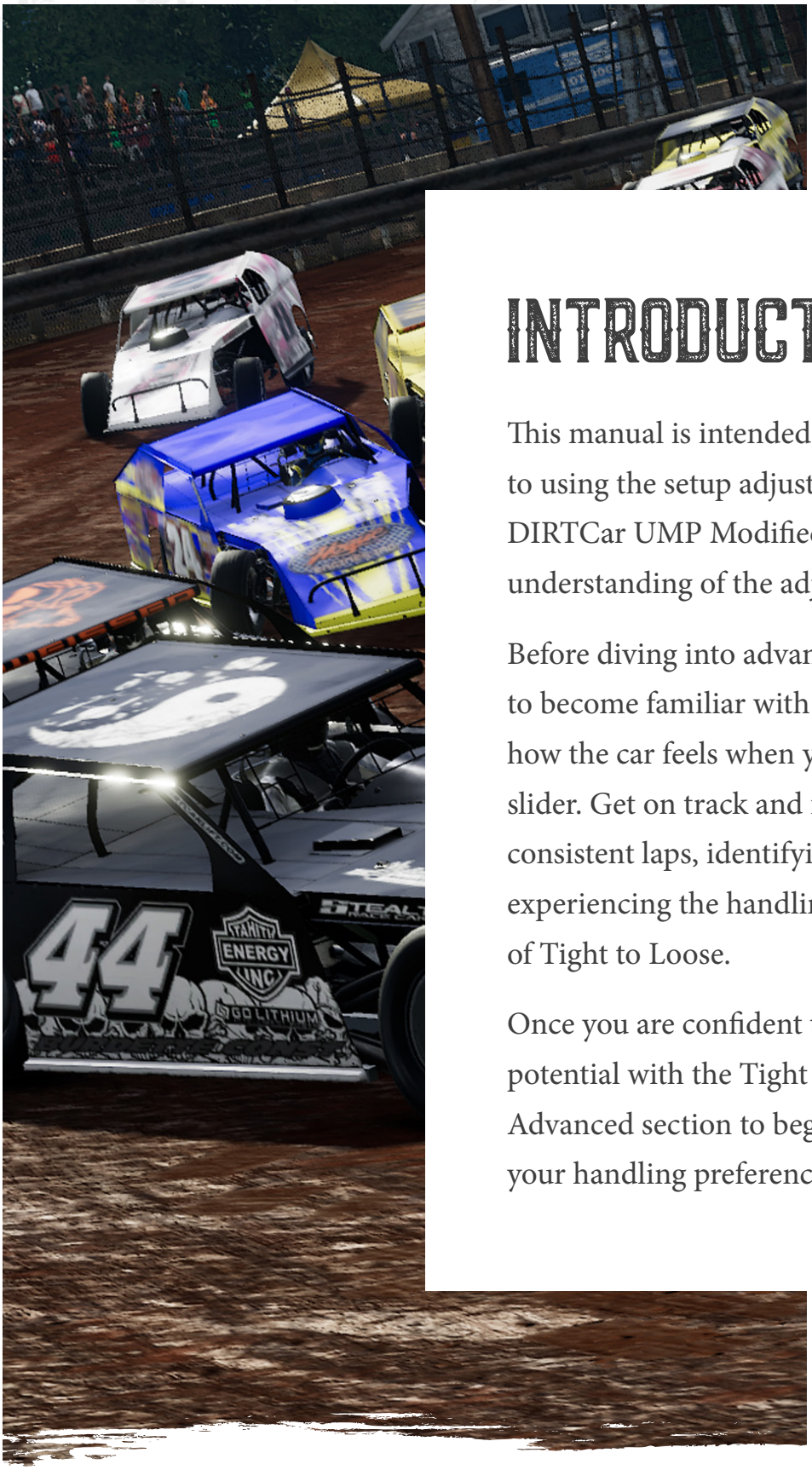
WORLD OF OUTLAWS DIRT RACING 24

OWNERS' WORKSHOP MANUAL

# GET TO KNOW YOUR UMP MODIFIED

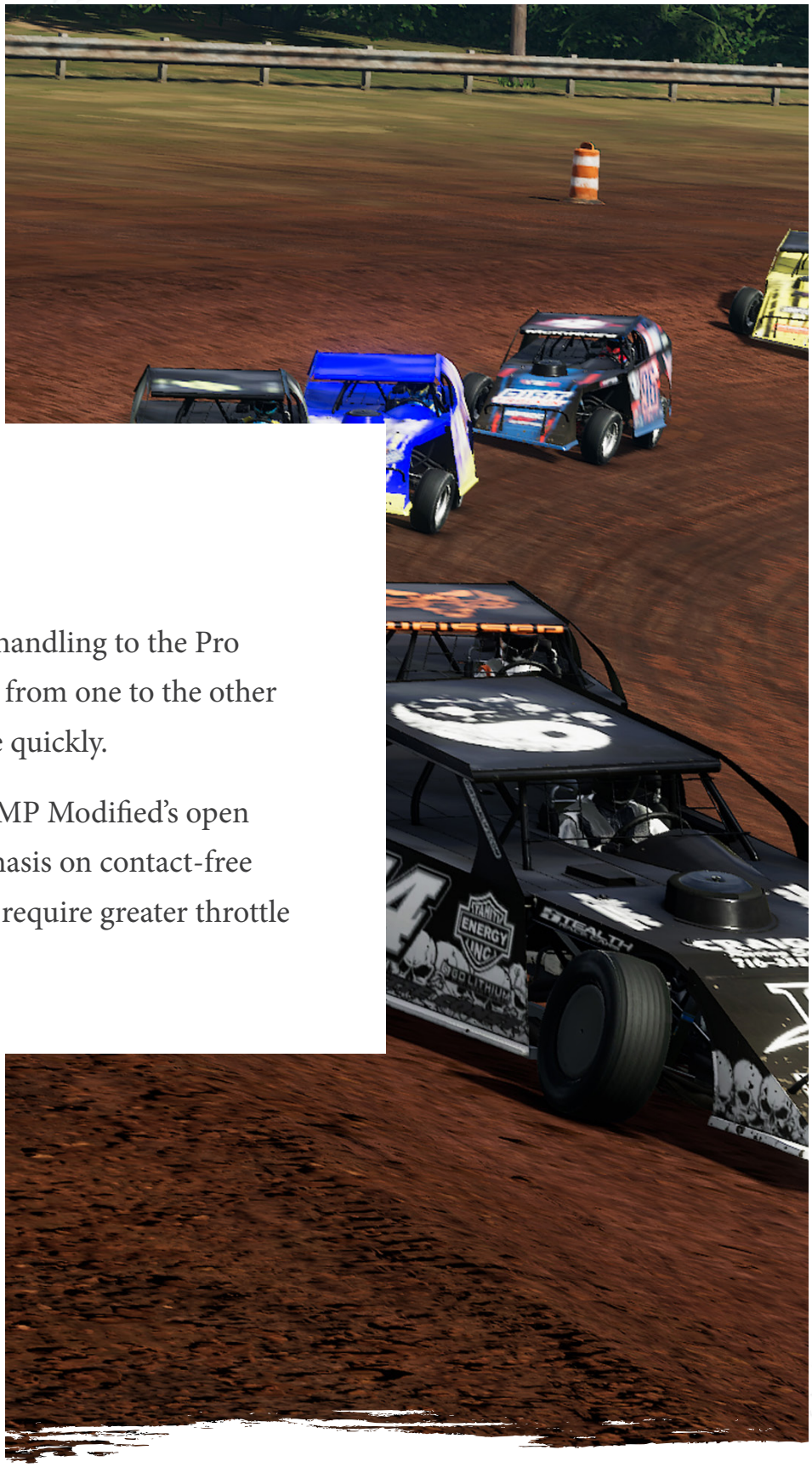



# INTRODUCTION

This manual is intended to provide you with a guide to using the setup adjustments available on the DIRTCar UMP Modified so that you can have a better understanding of the adjustments available to you.

Before diving into advanced setup changes, it is best to become familiar with the car and track as well as how the car feels when you adjust the Tight to Loose slider. Get on track and focus on making smooth and consistent laps, identifying the proper racing line and experiencing the handling of the car with different levels of Tight to Loose.

Once you are confident that you are nearing your driving potential with the Tight to Loose slider, read on to the Advanced section to begin tuning the car more closely to your handling preferences.



# DRIVING TIPS

The UMP Modified is similar in handling to the Pro Late Model, and drivers jumping from one to the other should be able to get comfortable quickly.

The biggest differences are the UMP Modified's open front fenders, which put an emphasis on contact-free driving, and thinner tires, which require greater throttle control to be fast.

# TECH SPECS

## CHASSIS BOTH CARS

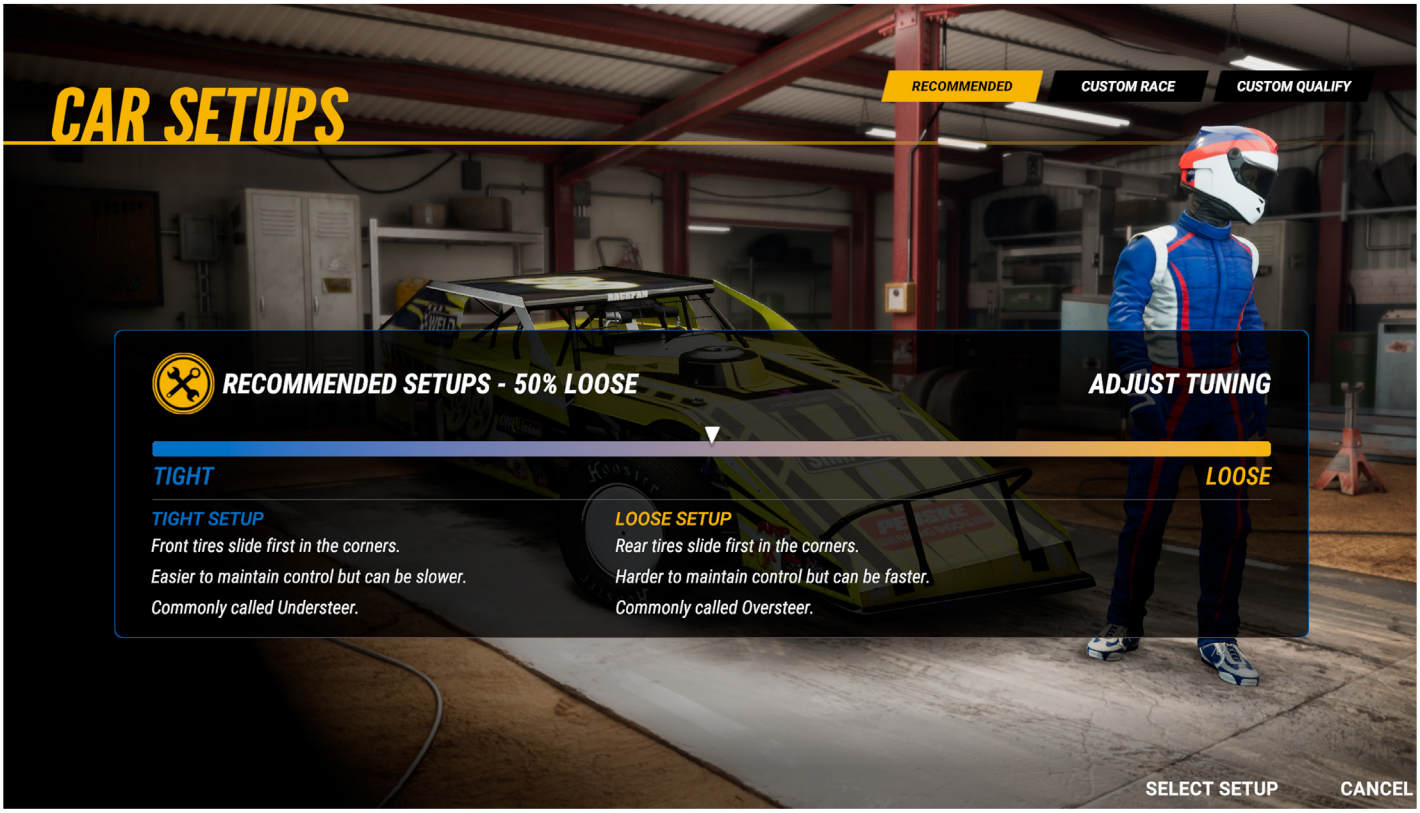
| | | |
|---|---|---|
| **DESCRIPTION** | Double Wishbone Independent front, 4-link solid axle rear suspension | |
| **LENGTH** | 184 in | 4674 mm |
| **WIDTH** | 67 in | 1701 mm |
| **WHEELBASE** | 108 in | 2743 mm |
| **DRY WEIGHT** | 2400 lbs | 1088 kg |
| **WET WEIGHT W/ DRIVER** | 2515 lbs | 1140 kg |

## POWER UNIT

| | | |
|---|---|---|
| **DESCRIPTION** | Naturally aspirated steel block pushrod V8 | |
| **DISPLACEMENT** | 410 cid | 6.7 Liter |
| **TORQUE** | 538 lb-ft | 730 Nm |
| **POWER** | 700 bhp | 521 kW |

# BASIC CAR SETUP

For those who wish to change the car's handling characteristics without diving into the Custom Setup options, the Recommended setups can be adjusted with the Tight/Loose slider in the Car Setups menu. Changing the slider setting towards either Loose or Tight will automatically adjust the car's setup to behave that way.




## TIGHT SETUP

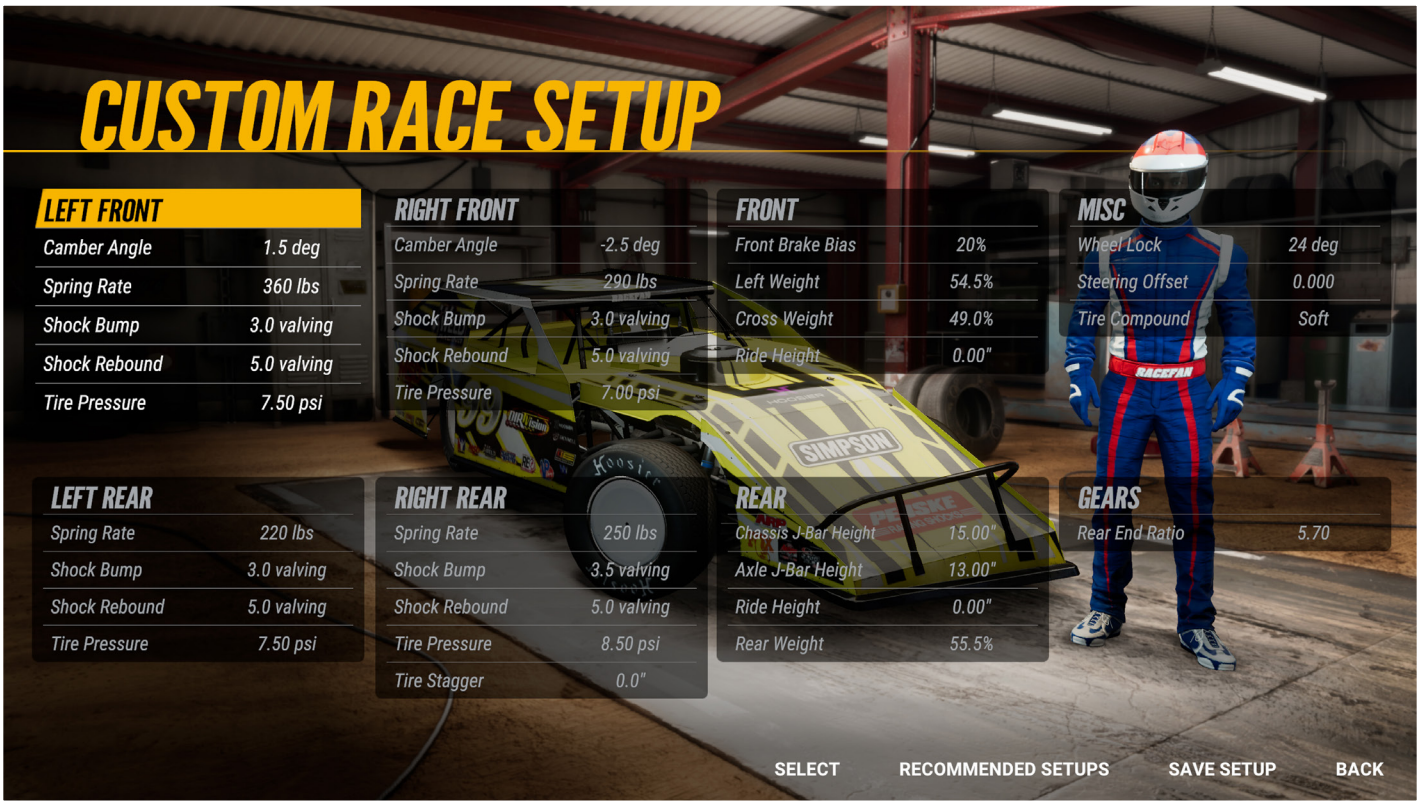
A Tight setup will generally be easier to control, especially when applying throttle because they will lose some front grip while cornering, a condition known as Understeer. These setups will not turn quite as easily, and can sometimes be slower, but will be easier to apply the throttle due to increased grip.

## LOOSE SETUP

A Loose setup is more difficult to control because it will tend to lose rear grip when cornering, a condition known as Oversteer. These setups will turn better, but be more difficult to apply the throttle due to the reduced grip. This can be faster in some cases, but an excessively loose setup, will be slower due to the lack of rear grip.

# ADVANCED CAR SETUP

Once you are confident that you are nearing your driving potential with the Tight to Loose slider, begin tuning the car more closely to your handling preferences with the following adjustments.



# CORNERS

## CAMBER ANGLE

Camber is the vertical angle of the wheel. Set the left side positive (tire leaning away from the car) and the right side negative (tire leaning towards the car).

### MORE CAMBER

MORE TURN RESPONSE,
CAR MAY BECOME LESS STABLE

### LESS CAMBER

LESS TURN RESPONSE
MORE STABILITY

## SPRING RATE

Spring Rate describes how stiff the corner spring is. Softer springs allow for more mechanical grip and deal with bumps better, while stiffer springs produce better response to driver inputs. Smaller, slower tracks will benefit from softer springs while stiffer springs will work better at fast, high-banked tracks.

### LEFT FRONT

| | |
|---|---|
| STIFFER | LOOSER ON TURN-IN |
| SOFTER | TIGHTER ON TURN-IN |

### RIGHT FRONT

| | |
|---|---|
| STIFFER | TIGHTER ON TURN-IN |
| SOFTER | LOOSER ON TURN-IN |

### LEFT REAR

| | |
|---|---|
| STIFFER | TIGHTER ON EXIT |
| SOFTER | LOOSER ON EXIT |

### RIGHT REAR

| | |
|---|---|
| STIFFER | LOOSER ON EXIT AND THROTTLE |
| SOFTER | TIGHTER ON EXIT |

### SHOCK BUMP

Shock Bump affects how stiff the shock is in compression (reduction in length). Higher values will make the shock harder to compress (good for smooth conditions), while lower values make the shock easier to compress (good for bumpy conditions). Differences between corner bump stiffnesses change the overall balance of the car on corner entry and exit, but not in the center of the corner.

#### FRONT SHOCK BUMP

| | |
|---|---|
| HIGHER | TIGHTER ON ENTRY |
| LOWER | LOOSER ON ENTRY |

#### REAR SHOCK BUMP

| | |
|---|---|
| HIGHER | TIGHTER ON EXIT |
| LOWER | LOOSER ON EXIT |

## SHOCK REBOUND

Shock Rebound affects how stiff the shock is during expansion (increase in length). Higher rebound values will slow expansion of the shock, which is good for aero and smooth conditions, while lower values will allow the shock to extend faster, which is good for bumpy conditions to prevent unloading the tires. Differences between corner rebound stiffnesses change the overall balance of the car on corner entry and exit, but not in the center of the corner.

#### LEFT FRONT

| | |
|---|---|
| HIGHER | TIGHTER ON EXIT |
| LOWER | LOOSER ON EXIT |

#### RIGHT FRONT

| | |
|---|---|
| HIGHER | LOOSER ON EXIT |
| LOWER | TIGHTER ON EXIT |

#### LEFT REAR

| | |
|---|---|
| HIGHER | LOOSER ON ENTRY |
| LOWER | TIGHTER ON ENTRY |

#### RIGHT REAR

| | |
|---|---|
| HIGHER | TIGHTER ON ENTRY |
| LOWER | LOOSER ON ENTRY |

## TIRE PRESSURE

Air pressure in the tire. Higher pressures will reduce grip while lower pressures will increase grip. Higher speeds and loads will require higher pressures, while lower speeds and loads will see better performance from lower pressures. Pressures should be set to track characteristics for best performance.

### LEFT FRONT

| | |
|---|---|
| HIGHER | LOOSER ON TURN-IN |
| LOWER | TIGHTER ON TURN-IN |

### RIGHT FRONT

| | |
|---|---|
| HIGHER | TIGHTER ON TURN-IN |
| LOWER | LOOSER ON TURN-IN |

### LEFT REAR

| | |
|---|---|
| HIGHER | TIGHTER ON EXIT |
| LOWER | LOOSER ON EXIT |

### RIGHT REAR

| | |
|---|---|
| HIGHER | LOOSER ON EXIT AND THROTTLE |
| LOWER | TIGHTER ON EXIT |

## TIRE STAGGER

Stagger is the difference in size of the left-rear and right-rear tire.

### HIGHER STAGGER

BETTER TURN-IN
MORE OVERSTEER THROUGH CENTER AND EXIT

### LOWER STAGGER

MORE UNDERSTEER ON TURN-IN AND CENTER
BETTER TRACTION ON EXIT

# FRONT

## 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 driver preference and track conditions.

| HIGHER BRAKE BIAS | LOWER BRAKE BIAS |
| --- | --- |
| MORE UNDERSTEER UNDER BRAKING | MORE OVERSTEER UNDER BRAKING |

## LEFT WEIGHT

The percentage of vehicle weight that is over the left-side tires.

| HIGHER LEFT WEIGHT | LOWER LEFT WEIGHT |
| --- | --- |
| LOOSER HANDLING | TIGHTER HANDLING |

## CROSS WEIGHT

Percentage of total weight in the right front and left rear tires.

| HIGHER CROSS WEIGHT | LOWER CROSS WEIGHT |
| --- | --- |
| MORE TRACTION ON THROTTLE<br>MORE UNDERSTEER THROUGH THE CORNER | MORE OVERSTEER THROUGH THE CORNER<br>LESS TRACTION ON CORNER EXIT |

### RIDE HEIGHT

Distance from ground to the front end. A lower front ride height can increase front grip, but can also make the car too loose.

**LOWER FRONT RIDE HEIGHT**

MORE OVERALL OVERSTEER

**HIGHER FRONT RIDE HEIGHT**

MORE OVERALL UNDERSTEER

## REAR

### CHASSIS J-BAR HEIGHT

Increasing the chassis j-bar relative to the axle j-bar will make the car looser on corner entry and tighter on corner exit. Increasing the overall j-bar height (both ends together) generally increases roll angle and helps the car steer through the center, but reduces drive off the corner. Lowering the overall j-bar height tightens the center and provides more drive off.

**INCREASING BOTH J-BARS**

LOOSER CENTER
LESS FORWARD TRACTION ON EXIT

**INCREASING CHASSIS J-BAR**

LOOSER ON TURN-IN
TIGHTER ON EXIT

**DECREASING BOTH J-BARS**

TIGHTER CENTER
MORE FORWARD TRACTION ON EXIT

**DECREASING CHASSIS J-BAR**

TIGHTER ON TURN-IN
LOOSER ON EXIT

## AXLE J-BAR HEIGHT

Increasing the axle j-bar relative to the chassis j-bar will make the car tighter on corner entry and looser on corner exit. Increasing the overall j-bar height (both ends together) generally increases roll angle and helps the car steer through the center, but reduces drive off the corner. Lowering the overall j-bar height tightens the center and provides more drive off.

### INCREASING BOTH J-BARS

LOOSER CENTER
LESS FORWARD TRACTION ON EXIT

### INCREASING AXLE J-BAR

TIGHTER ON TURN-IN
LOOSER ON EXIT

### DECREASING BOTH J-BARS

TIGHTER CENTER
MORE FORWARD TRACTION ON EXIT

### DECREASING AXLE J-BAR

LOOSER ON TURN-IN
TIGHTER ON EXIT

## RIDE HEIGHT

Distance from ground to the rear end. Lowering the rear ride height can increase rear grip, but can make the car too tight.

### LOWER REAR RIDE HEIGHT

MORE OVERALL UNDERSTEER

### HIGHER REAR RIDE HEIGHT

MORE OVERALL OVERSTEER

## REAR WEIGHT

Percentage of total weight on the rear tires.

### HIGHER REAR WEIGHT

MORE OVERSTEER IN HIGH-SPEED CORNERS
MORE TRACTION OUT OF LOW-SPEED CORNERS

### LOWER REAR WEIGHT

MORE UNDERSTEER IN HIGH-SPEED CORNERS
LESS TRACTION OUT OF LOW-SPEED CORNERS

# MISC

## WHEEL LOCK

The amount of steering range available at maximum input.

| MORE WHEEL LOCK | LESS WHEEL LOCK |
| --- | --- |
| HIGHER STEERING RANGE<br>FASTER STEERING RESPONSE | LOWER STEERING RANGE<br>SLOWER STEERING RESPONSE |

## STEERING OFFSET

This is used to compensate for chassis settings which cause the car to pull in one direction by re-centering the steering wheel to eliminate steering input on the straights.

## TIRE COMPOUND

Tire compound changes the softness of the tires on the car. This directly affects grip and handling but can also influence tire life through a race.

| SOFT | MEDIUM | FIRM |
| --- | --- | --- |
| HIGH GRIP<br>CAN INDUCE UNDERSTEER | BALANCED GRIP AND HANDLING | LOWER GRIP<br>CAN INDUCE OVERSTEER |

# GEARS

## REAR END RATIO

The Rear End Ratio is the gear ratio between the driveshaft pinion and the differential ring gear. This will affect top speed and acceleration, and should be changed to reach maximum engine RPM by the end of the track's longest straight.

### HIGHER RATIO

LOWER TOP SPEED
BETTER ACCELERATION

### LOWER RATIO

HIGHER TOP SPEED
LESS ACCELERATION