Guia de Setup do iRacing

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Índice de conteúdos:

1) Finalidade:

Este guia abrange cada um dos ítens na opção *Garage* para cada carro disponível no iRacing.com Motorsport Simulation.

Explica a função de cada ajuste e como encontrar meios que possam indicar as deficiências do carro no início, meio e fim de uma curva.

2) Pontos Importantes:

É mais fácil piorar um carro do que melhorá-lo. Os acertos iniciais (baseline), fornecidos para cada carro, são muito bons. Antes que você faça qualquer mudança no chassi do carro, é essencial que você primeiro faça testes contínuos, marcando os tempos, para lhe ajudar a identificar o que ajudou ou piorou no ajuste posterior. O uso de sessões de *Time Trial* do simulador é essencial para se ter uma base. Quando você não consegue mais baixar o tempo da volta com o carro do jeito que está, você pode começar os ajustes finos.

Se você fizer muitos ajustes de uma só vez, você provavelmente deixará o carro pior do que estava. Faça ajustes no carro de uma forma ordenada, um ajuste de cada vez, para identificar qual ajuste faz o carro ficar melhor ou pior. **Seja Paciente!**

Dirigibilidade, que é definida por fazer o carro reagir melhor aos comandos do piloto, é a meta principal ao fazer ajustes no chassi. Não existe “setup mágico.”

Lembre-se que todos os componentes afetam o comportamento do carro o tempo todo. Quando você faz um ajuste para um problema particular da pista, pode criar uma resposta negativa em algum outro lugar. O equilíbrio entre a resposta positiva que a mudança fez e os efeitos negativos em potecial no comportamento do carro deve sempre ser levado em conta na avaliação final das mudanças. **Nota: A exceção é o equilibrio do freio (brake bias), quando não há pressão no pedal de freio.**

Para a maioria dos “setups” existe uma transição de ajustes. Dependendo de onde você estiver nessa transição, ou vai estar “muito mole” ou “muito duro”. Por isso nós testamos.

Você pode pensar no carro fazendo uma curva como um pêndulo, mas é mais útil nessa analogia pensar em dois pêndulos, onde o eixo frontal é um e o eixo traseiro o outro. Quando a velocidade na curva aumenta é alta, geralmente ou os pneus dianteiros ou os traseiros perdem aderência primeiro. Quando os pneus dianteiros perdem aderência primeiro, induz o piloto que ele tem que virar mais na direção da curva. Se os pneus traseiros perdem aderência primeiro, a sensação é a de que a traseira do carro está prestes a girar. Os termos técnicos para esses dois fenômenos são “sair de frente” (*understeer*) e “sair de traseira” (*oversteer*).

Os pilotos de oval e misto usam vocabulários ligeiramente diferentes para descrever os ajustes feitos nos carros e os efeitos que esses ajustes tem na dirigibilidade do carro. O importante é lembrar que as leis da física são as mesmas, esteja você correndo em circuito oval ou misto.

3) Definições:

Sair de FRENTE: O ângulo de deslizamento dos pneus dianteiros é maior que o ângulo de deslizamento dos pneus traseiros quando o carro está fazendo a curva no limite. O carro está virando menos do que deveria em relação ao movimento no volante e o piloto precisa virar ainda mais na direção da curva. Se o carro estiver rápido demais, o piloto não consegue virar o suficiente para não permitir que o carro saia da pista, e o que vai acontecer é o nariz do carro saindo primeiro.

***Sair de TRASEIRA*:** Custa-se usar a expressão “carro muito solto” para definir essa característica. O ângulo de deslizamento dos pneus traseiros é maior que o ângulo de deslizamento dos pneus dianteiros quando o carro está fazendo a curva no limite. Existem vários tipos de saidas de traseira -

Synonymous with “loose.” The slip angle of the rear tires is greater than the slip angle of the front tires when a car is cornering at the limit. There are numerous types of OVERsteer – steady-state, trailing-throttle, power, brake-bias induced, and aerodynamically induced. To the driver it feels as if the car is turning more than the steering input would dictate. Easing off on the steering without making any sudden moves with the throttle can bring the rear of the car back under control, but if the car is going too fast, or the driver doesn’t respond quick enough, the car will spin, and tend to go off the track backwards.

Commit to memory the basic sequence of a corner: Braking Point, Entry (turn-in), Mid-Corner (apex) and Exit (track-out).

Brake Point: A specific reference on or next to the track which drivers use to start the application of brakes. Smart drivers start with a conservative brake point and move it closer to the corner until exit speed is compromised. This is called "The Procedure to Find the Braking Point." (Learn to maintain the pressure on the brake that keeps the car at maximum controlled deceleration. With cars that generate little or no aerodynamic downforce this is a steady pressure – just short of brake lockup – throughout the braking zone. For cars that generate a good deal of aerodynamic downforce brake pressure will need to be modulated, decreasing as the car slows down and there is less downforce being applied to the tires.)

Turn-In: The point at which the driver first turns the steering wheel, transitioning the car from the straight into the corner.

Apex: The clipping point on the inside of a corner where the car is at the correct angle for a perfect exit onto the next section of track.

Track-Out: The point that the car touches the outside edge of the road at the exit of a corner. At this point the driver's hands should be straight with no cornering load felt through the wheel.

4) Chassis de Circuitos Mistos

1.

Pneus

Dianteiro e Traseiro

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Tire Pressure "Pressão de Pneu": Provalmente esse é o ajuste mais importante que você pode fazer nos pneus e que trará resultados em todas os setores da pista durante uma volta.

A pressão ideal do pneu é determinada pela carga que o pneu sofre. Altas pressões aceitam melhor grandes cargas. Isso é, em um carro pesado, ou em uma curva inclinada, ou em uma compressão no final de uma descida, mais aderência será perdida com maiores pressões, enquanto com pouca carga e baixa pressão, tende a ter melhor aderência.

O aumento da pressão irá deixar o perfil do pneu mais reto, o que deixa o pneu mais responsivo aos comandos do piloto, particularmente no momento da tomada de curva. O problema é que se o pneu começar a ficar mais "reto", começará perder contato com a pista. Além disso, saltos, zebras ou movimentos violentos bruscos do piloto podem causar perda de controle.

Diminuindo a pressão irá deixar o perfil do pneu convexo. Quanto mais o pneu estiver abaulado, aumentará a superfície de contato e, geralmente, aumenta a aderência. O ponto negativo é que o carro irá começar a ficar menos responsivo aos comandos do piloto.

Cold Pressure "Pressão Fria": Medida de pressão do pneu (em "psi" - *pounds per square inch*) quando o pneu está em temperatura ambiente nos pits, antes de terem sido usados na pista.

Last Hot Pressure "Última Pressão Quente": Essa é a pressão registrada quando você saiu do carro ou parou no seu box. Assim como a temperatura do pneu, a pressão nele aumenta. Geralmente essa pressão irá estabilizar depois de algumas voltas.

Last Temps O M I "Últimas Temperaturas - Externo, Médio, Interno": Registro da última pressão quente de 3 pontos do pneu: Externo (O), Médio (M) e Interno (I). Essas leituras dão uma dica de como está distribuída a carga em um pneu. Um bom pneu demonstra diferença de cerca de 10 graus (+/- 5) do ponto Externo (O) ao Interno (I) do pneu, com a parte Interna (I) sendo a mais quente.

b) Camber "Cambagem"

A medida de quanto o topo do pneu inclina para Dentro (*IN*) ou para Fora (*OUT*) do centro do carro. Quando você adiciona cambagem negativa (negative camber), como -1.0 a -2.0, o topo do pneu é inclinado para Dentro

(*IN*) em direção ao centro do carro.

Mudanças na Cambagem são ajustes com intuito de otimizar o uso da área de contato do pneu no momento que o carro está saindo de uma curva com muita carga nos pneus. Também é muito eficiente quando precisar contornar um curva com muita carga.

FRONT "Dianteiro": Se você quiser maior aderência na tomada de curva, adicionar cambagem negativa na frente poderá ajudar. Entretanto, o problema é que, uma vez que o pneu está inclinado para dentro, menor superfície de contato terá quando o carro estiver em uma reta e, consequentemente, terá menor performance - o efeito negativo de adicionar cambagem negativa é que em momentos de frenagem na reta as rodas poderão travar, mesmo com pouca pressão no pedal. Muita cambagem negativa pode também causar escapadas de frente, como se passássemos em uma poça de óleo na pista.

REAR "Traseiro": Se você quer maior aderência na tomada de curva, adicionar cambagem negativa poderá ajudar. O problema de colocar muita cambagem negativa é que o carro poderá "perder a traseira" e causar desgaste elevado do pneu.

c) Caster

Inclinação da suspensão dianteira em relação a superfície de contato do pneu e a coluna de direçao. Quando o caster é aumentado, a força que faz com que o volante fique reto será aumentada.

O caster é ajustado em carros de circuito misto para melhorar a sensação que o piloto quer ter de resposta do volante. Esse efeito é geralmente positivo até que seja notado instabilidades nas saídas de curva ou curvas de alta velocidade.

Nota: Em vários carros, quando é feito ajuste no caster, a cambagem também poderá mudar. Isso acontece simplesmente por conta da natureza da geometria da suspensão deles.

d) Toe "Convergência"

Ajuste de alinhamento que indica a direção que os dois pneus, tanto os dianteiros quanto os traseiros, estão apontando em relação à linha central do carro. Se os pneus estão totalmente apontados para frente, paralelos à linha central do carro, isto é CONVERGÊNCIA ZERO. Se, por exemplo, ambos pneus da frente estão apontados em direção da linha central do carro (para dentro), eles então têm convergência positiva (+), também conhecido como "TOE IN". A quantidade de convergência do eixo é medido em frações de polegadas ou milímetros e representa o desvio do marco zero e é acumulativo.

Com os dois pneus um contra o outro, mantemos o carro estável diante de algumas imperfeições da pista. Uma pequena quantidade de convergência positiva é bom de modo geral para estabilidade e dirigibilidade. De modo geral, muitos carros possuem uma configuração padrão com um eixo usando convergência positiva (+) e outro negativo (-).

Front Toe "Convergência Dianteira": Ajusta como o carro se comporta em linha reta e na entrada da curva.

Toe-In (+) "Convergência Positiva": Adicionando convergência positiva irá aumentar a estabilidade em zonas de frenagem e diminuir a resposta inicial para virar a roda. O problema é que a convergência positiva irá aumentar o arrasto fazendo com que o carro perca velocidade em retas. Quanto mais longas as retas forem, mais arrasto será gerado.

Toe-Out (-) "Convergência Negativa": Increasing TOE-OUT will have the largest effect at corner-entry by speeding up the car's response to the initial turn of the wheel. The tradeoff can be straightline speed and stability.

Rear Toe "Convergência Traseira": Esse ajuste o comportamento da traseira do carro durante uma curva.

Toe-In (+) "Convergência Positiva": Geralmente, mantendo o pneu que está do lado de fora da curva

com convergência positiva (para dentro) ajuda na aderência e na estabilidade de modo geral.

Toe-Out (-) "Convergência Negativa": Faz com que o pneu fique inclinado para o lado de fora da curva. Isso faz com que o carro normalmente perca a traseira quando o limite de aderência é atingido. Geralmente, convergência negativa só é usado em carros de circuito misto para combater saídas de frente que não são possíveis de ser corrigidas de outra forma.

e) Roll Bars "Barras Estabilizadoras/Barras Anti-torção"

Quando um carro vira, as forças geradas na curva fazem com que o chassi torça em direção à parte de fora da curva. A quantidade de torção do chassi precisa ser limitada para que seja otimizada a carga e a cambagem dos dois lados do carro. As barras estabilizadoras ficam acopladas nos amortecedores, justamente para essa função. Barras estabilizadoras são molas transversais, projetadas para agirem somente quando o carro está torcendo. Elas podem ser colocadas nos amortecedores dianteiros, traseiros ou em ambos. A função primária da barra estabilizadora é a de ajustar o equilíbrio de saídas de frente ou de traseira do carro durante uma curva, ajuste tal que pode ser conseguido através de alguns ajustes finos da quantidade de carga, frontal e traseira, que é transferida para os pneus de fora da curva.

Uma barra estabilizadora dura irá aumentar a carga no pneu que está para fora da curva. Se ambas barras estiverem duras, a carga transferida será a mesma, mas a torção do chassi será reduzida de modo geral, o que poderá exigir um ajuste de cambagem. Lembre-se que uma das principais metas é de encontrar um bom equilíbrio entre aderência na dianteira e traseira do carro. Ao ajustar a barra estabilizadora, o aumento numérico irá elevar a resistência à torção e, consequentemente, deixando o carro mais duro. Alguns carros têm somente a barra estabilizadora frontal, e em alguns carros a traseira pode ser removida. Outros não têm barra estabilizadora alguma e precisam que a esta torção seja corrigidas com ajustes nas próprias molas.

Barra Estabilizadora Dianteira: Um ajusto poderoso que afeta o comportamento do carro de maneira geral.

Dura (Stiffer): Aumenta a estabilidade do carro e faz com que o carro aponte melhor nas curvas, além de permitir que o piloto seja mais agressivo ao volante. O problema poderá ser encontrado em saltos e/ou frenagem. Uma barra estabilizadora dianteira mais dura será mais agressiva pois, quando um lado comprime, o eixo dianteiro inteiro será afetado e, consecutivamente, perderá aderência de modo geral.

Macia (Softer): Deixa o carro mais traseiro (ou menos dianteiro). Todavia a dianteira será melhorada, aumentando a performance em zonas de frenagem e em saltos.

Rear Anti-Roll Bar: Um ajuste importante para tornar o compartamento do carro melhor a partir do meio até a saída da curva.

Dura (Stiffer): Quando você acelera quando o volante já está virado, a barra estabilizadora traseira entra em ação. Endurecendo a barra estabilizadora, a traseira fica um pouco mais solta na saída da curva. < Again, the compromise is in compliance; a possible SNAP or FLAT OVERsteer may result if rear anti-roll bar is TOO stiff.

Softer: Allows more roll at the back of the car, which will be most evident at corner exit. If the bar is TOO soft, the car will exhibit exit OVERsteer. In this case, compared to a rear bar that is TOO stiff, the exit OVERsteer condition will be more gradual instead of a snap, hence the phrase "roll OVERsteer."

f) Brake Bias

As a car decelerates, load transfers to the front tires, which generally improves their grip, while decreasing the grip at the rear of the car. The goal is to adjust the proportion of the braking forces between front and rear (brake bias) in order to maximize overall braking efficiency. If the brakes are still applied as the car turns into the corner, the brake-bias setting will also have an effect on the car's turn-in balance.

Increasing Front bias: Shown as a larger number, increasing brake bias to the front will put more braking force into the front tires. This will stabilize the car in braking zones and increase understeer at corner entry. The compromise is that with too much front bias the rear tires are being under-utilized and overall braking efficiency

will suffer.

Reducing Front bias: This puts more braking on the rear tires, which, within limits, improves braking efficiency. Too much rear brake bias, though, hurts performance in two ways. First, it reduces overall braking efficiency. More seriously, too much rear brake bias, particularly if the driver is not braking in a straight line or has weak footwork on downshifts, can cause the rear tires to lock up, which puts the car in a dynamically unstable condition that can easily result in loss of vehicle control. Note that with a moderate amount of rear-brake bias, the car will have a tendency to rotate (OVERsteer) at corner entry upon brake release.

g) Spring Perch Offset

In effect this is a RIDE-HEIGHT adjustment. For cars with coil-over spring/damper units, the spring perch offset is the distance from the spring seat of the spring perch (or shock collar) on the shock body to the rod end of the shock body. With no other spring changes, reducing this offset will extend the shock (raising the ride height at that corner of the car), whereas increasing it will collapse the shock (lowering the ride height). This number simply represents the lengthening or shortening of the spring with zero being a baseline starting point. Though asymmetrical (left-to-right) ride heights and spring rates are very common in oval-track tuning, in the vast majority of cases, keeping the car symmetrical (left-to-right) is best. This is a very powerful tool affecting the overall behavior of the car throughout the lap. Notice that when ride-height changes are made symmetrically, the at-rest corner weights will generally stay the same; it is in dynamic circumstances (i.e. while running on the track) that handling performance changes occur.

NOTE: The term used when comparing the front ride-height to the rear ride-height is RAKE. When the front suspension is set lower than the rear, the car is said to have “POSITIVE RAKE”.

Front:

Increasing Offset: LOWERS the ride height of the front of the car. This will shift more weight to front, improving front-tire grip and thus shifting the balance to less UNDERsteer and/or more OVERsteer.

Decreasing Offset: RAISES the ride height of the front. The change will shift weight to the rear, improving the grip of the tires at that end of the car and shifting the handling balance toward UNDERsteer.

Rear:

Increasing Offset: LOWERS the ride height at the rear, which shifts weight and grip to that end of the car. This shifts the handling balance toward UNDERsteer.

Decreasing Offset: RAISES the ride height at the rear, which shifts weight and grip to that front end of the car. This shifts the handling balance toward OVERsteer.

h) Corner Weights

This number reflects the amount of load on each tire as it sits in the garage. As noted above, ride heights and corner weights should almost always be symmetric (side-to-side) for a road-racing car. Corner-weight adjustment is most often used on ovals. As noted above, when ride-height changes are made symmetrically, the at-rest corner weights will generally stay the same; it is in dynamic circumstances (i.e., while running on the track) that handling performance changes occur. Take care to insure that the steering wheel is straight while in the garage, because of caster, having the wheel turned will shift the baseline corner weights and cause differences in corner weights once the steering is returned to the straight-ahead position.

i) Wings

Wings are different than the other handling-adjustment tools for several reasons. The magic of a wing is that it produces load on the tires – which translates to increased corner speed and in the case of very powerful cars, stronger acceleration off the corner without wheelspin – without a significant weight penalty. The downforce produced by the wing increases as vehicle speed (and therefore the speed of the air over the wing) increases, albeit with a concurrent increase in aerodynamic drag that slows the car’s straightaway speed.

Different wing designs have different lift/drag ratios, but in most racing classes today the aerodynamic design of the wing is set by the rules. What is adjustable is the angle of attack of the wing. The number shown is in reference to the horizontal. The higher the number, which is given in degrees, the steeper the angle of the wing relative to the airflow. Up to the point that the wing becomes aerodynamically stalled, as the angle of attack increases so does the level of

down-force, as well as the amount of drag, which slows straightaway speeds. (A stalled wing produces the worst of all possible worlds; downforce is greatly reduced and drag increases sharply.)

It is important to note that with properly adjusted wings, the speed lost on the straightaway due to drag is far exceeded by the beneficial effects of increased corner speeds. Not only does the car spend less time negotiating the corner, but the sharply increased speed at which the car enters the straightway means a shorter time from the exit of one corner to the entry of the next, even if terminal speed on the straightaway is decreased.

Front Wing: Typically used as a tuning tool to balance with the rear wing.

> **Raising the angle of attack of the front wing**: Increases the level of front grip, especially at the higher-speed sections, such as the braking zones at end of straights. The compromise is an increase in drag, but a similar change to the rear wing will generally result in an even greater increase in drag.

Rear Wing: Tends to be much larger than the front wing and has a major effect on the car's overall performance.

> **Raising the rear wing:** Shown as an increase in degrees of angle of attack, will add grip and shift the balance to UNDERsteer. The compromise is that drag increases and straight-line speeds will be lower.
>
> **Lowering the rear wing:** Shown as a decrease in degrees of angle of attack, will reduce the rear grip level while reducing drag.

j) Springs

The springs are what hold the car off the ground. The relative stiffness of a spring is based on the amount of force needed to compress the spring one inch. Thus a 900 lb. spring is stiffer than an 800 lb. spring. Quite literally, every bit of feedback that a driver senses from the road's surface comes through the springs. Changing the springs in the car is one of the most powerful tools available.

Front:

Stiffer: Stabilizes the car and shifts the handling balance toward UNDERsteer. The compromise is less compliance.

Softer: Adds a significant amount of front grip. The compromise is a less stable car.

Rear:

Stiffer: Reduces UNDERsteer, particularly at mid-corner and exit. The compromise is less compliance in the rear and less grip.

Softer: Adds rear grip and shifts the balance to UNDERsteer.

k) Dampers (Shocks)

The primary function of the shock absorbers (or "dampers" as they are properly known), is to control or "dampen" the energy as it enters and exits the springs, which when compressed ("bump") and then released ("rebound") have a natural tendency to overshoot their original length as they release the energy imparted by the original compression. (Anyone who has driven a car with a broken shock can attest to the deleterious effect on handling; a car without shocks is literally undrivable at speeds faster than a walk.)

Dampers won't limit the total amount of load transfer through the car, but will affect the amount of time it takes the loads to transfer. Therefore, the car's behavior during moments of *transition*; such as initial brake application, brake release, initial turn-in and application of throttle can be affected by a damper setting change.

The damper adjustments available in the simulation are for the compression (bump) motion and rebound motion of the spring. If we take the front suspension as an example, the compression (bump) happens when additional load is put on the spring, as when hitting a bump and/or hitting the brake pedal. As the spring compresses in response to this additional load, the compression setting on the dampers provides additional resistance. The rebound motion is simply the spring trying to "rebound" to normal after being compressed, as when the car comes off a bump or the driver releases the brake pedal. Resistance to how fast this happens comes from the damper's rebound setting.

When an *increase in resistance (stiffer)* in either motion is desired, select a *larger number, which represents added resistance*. The zero setting is simply the midpoint in the range of resistance available; it could also be a five (5) on a zero-to-ten scale. Even the lowest (softest) number provides some resistance. A -5 setting provides more resistance (stiffer) than a -10 setting.

Because of the variety of corners in road racing it is a good idea to keep the car symmetrical on its longitudinal (left-right) axis.

Compression (Front)

Stiffer Compression: Slows down the car's frontward weight transfer upon initial brake application. The compromise is a slight loss of compliance.
Softer Compression: Adds grip to the front tires through better compliance, but at the cost of stability of the vehicle.

Compression (Rear)

Stiffer Compression: This change is most effective at reducing UNDERsteer at turn-in and mid-corner and resisting UNDERsteer at initial throttle application, at the cost of possible OVERsteer both at turn-in and throttle-on at the exit of the corner.
Softer Compression: This change should improve rear grip through better compliance. The corner-entry handling balance will move toward UNDERsteer along with improved power-down. The compromise is increased UNDERsteer at turn-in and under throttle-on conditions, such as at the corner exit.

Rebound (Front)

Stiffer Rebound: As the brakes are released at corner-entry, the initial turn-in should be more positive, with less UNDERsteer. Taken too far, this can produce turn-entry OVERsteer.

Softer Rebound: As the brakes are released at corner-entry, the tires will have better compliance, while the handling balance will shift toward UNDERsteer. The compromise is the potential for increased UNDERsteer at corner exit.

Rebound (Rear)

Stiffer Rebound: Will produce increased UNDERsteer at corner entry. The potential downside is less compliance when the throttle is opened.
Softer Rebound: This change will be best felt at corner entry with less UNDERsteer and improved throttle-open compliance. The potential downside is that the driver may have less control at corner entry.

l) Gears

The choices for gearing for a given car in the simulation are dictated by the series rules. Some cars have wide gearing options, while others, such as showroom stock or "spec" series, may have one fixed set of gears.

Short: Refers to a selection of gears that are best suited for quick acceleration and shorter straights.

Tall: Refers to gearing that is best suited for long straights and higher top speeds.

Oval: Gearing that is suited for the car to be running continuously at high speeds with little deviation between cornering and straight speeds.

m) Push Rod Length

The push rod is the component on some cars that is used to adjust ride height. Lengthening the push rod at one corner of the car will increase the ride height at that corner. (Again, it's generally a good idea to keep the car symmetrical from left to right with ride-height adjustments.)

Front:

Lengthening the Rods: *Raises* the front ride height of the car, shifting the handling balance toward UNDERsteer by taking some performance from the front of the car.

Shortening the Rods: *Lowers* the front ride height, providing better grip from the front tires and shifting the balance toward OVERsteer (or less UNDERsteer.)

Rear: _

Lengthening the Rods: *Raises* the rear of the car, shifting the balance toward OVERsteer (or less UNDERsteer.) The potential downside – less rear braking available – may need to be addressed with an increase in brake bias to the front of the car.

Shortening the Rods: *Lowers* the rear ride height and shifts the balance toward UNDERsteer.

5) Oval Chassis

a) Tires (Front and Rear)

Tire Pressures: Changing tire pressures is probably the most powerful adjustment available as tire performance affects every part of a lap.

Ideal tire pressure is determined by the load the tire carries – higher pressures handle higher loads better. That is, in a heavier car, or a banked turn, or compression at the base of a hill, more grip will be retained with higher pressures, whereas with lighter loads, lower pressures tend to give better grip.

Increasing the pressure will in effect STIFFEN the sidewall of the tire, which makes the tire more responsive to the driver's inputs, particularly during the initial turn-in for a corner. The compromise is that as the tire becomes stiffer it will start to lose compliance with the road. Therefore, bumps, curbs and violent inputs from the driver may result in a loss of traction.

Decreasing tire pressure will SOFTEN the sidewall of the tire. As the tire softens, the compliance improves and, generally, grip improves. The downside is that the car will become less responsive to driver inputs, (i.e., the car feels sluggish).

Cold Pressure: A measurement of inflation pressure (measured in "psi" – pounds per square inch) when the tire is at ambient temperature in the pits, before having been run on the race track.

Last Hot Pressure: This is the tire pressure as recorded when you exit your car, or pull into your pit stall, whichever is first. As tire temperature increases in a run, so does the pressure in the tire. Generally, this pressure will stabilize after a few laps.

Last Temps O M I: This is the tire temperature as recorded when you exit your car, or pull into your pit stall, whichever is first. At the end of a run the surface tire temperatures are displayed with readings taken at the outer edge (O), middle (M) and inner edge (I). Generally speaking, these readings hint at how well the tire is being maximized. A good rule of thumb is that the temperature differential should be about 10 degrees (+/- 5) from the outer to inner edge of the tire, with the inner edge being the hottest.

a.
Front:

Toe-in: Toe-in will help your car turn, particularly at exit of the corner. Reducing toe-in (or going to toe-out) will make the car tighter and noticeably more stable on exit of the corner.
Front Brake bias: Raising this percentage will increase brake pressure to the front of the car, which will typically make the handling under braking tend toward understeer and may result in some loss of braking efficiency. Lowering this number will decrease the front brake pressure.
Front Wheel offset: On the Legends Car the front lower control arms can be changed so that the left side is shorter than the right by 5/8". This just puts more weight on the left side, which improves cornering in left-hand turns. On ovals, set it to 5/8". On road circuits, it is best at 0".
Sway Bar: A smaller sway bar will cause the car to roll more to the outside in corners. The result is that the car will tend to be "looser" (handling shifts toward OVERsteer) as the right front travels and takes weight off the left-rear of the car. Sway bar settings are mostly driver preference.

There is no wrong answer or sweet spot. When you like the car's attitude mid-corner the sway bar is doing its job. Changing the sway bar diameter gives bigger changes in bar stiffness. For finer adjustment, use the sway bar arms (see

below.)

Sway bar Arm Length: The sway bar arm length can be adjusted in three settings: 14", 15", and 16". This arm is connected from the sway bar itself directly to the lower "A" frame on both the right- and left-front suspension, one arm for each side. Changing the arm length fine-tunes the stiffness of the sway bar.

A shorter arm will enhance the sway bar's effect on cornering. A longer arm will lessen the sway bar's effects. Shorter arms will tighten the car up. This increases the bar's effective stiffness by reducing the length of the lever-arm through which the wheel acts on the bar. A longer arm will soften the sway bar and allow the car to turn better. The effects of the sway-bar-arm changes will mostly be felt on entrance and exit of the corner, and less so during steady-state cornering.

Left Bar end offset: Offset is how is how sway-bar gap (discussed immediately below) is determined.

Sway bar gap: The sway bar gap setting is measured on the left-front suspension. Where the sway bar arm connects to the lower "A" frame, there is an adjustable Heim joint. This Heim joint determines the sway-bar gap. In iRacing, sway-bar gap has positive and negative measurements. Negative measurements mean the sway bar is loaded and will act as an anti-roll bar immediately upon left- and right-hand steering inputs. This will make the car less likely to rotate or turn. Load can increase comfort on a car that is loose on entry. Positive numbers means the sway bar is not loaded. The gap will allow a certain amount of roll to occur as a result right-hand-steering inputs before the anti-roll bar will begin acting on the suspension. Increasing this number will make a car rotate heavily on entry and turning ability will increase throughout the rest of the corner. A neutral bar will have a setting of 0. Sway bar gap is typically a setting of driver preference. Find a spot you like and remember that this setting is highly affected by many other changes within the garage. It is imperative you keep a good watch on your sway bar gap as it is likely to change drastically with minor adjustments to the car's other components. To avoid unintentionally changing your sway bar gap, set it to a large positive number (large gap), make your other adjustments and then re-adjust the sway bar gap to your preferred setting.

1.

Left Front:

—

Corner weight: This is the weight of the left front as it would show if the car were on a scale. Increasing this number helps the car turn.

Ride height: This is the height of the left-front corner of the car's chassis. Raising this will likely result in a lack of grip; lowering it will increase grip at the front of the car.

Shock-collar offset: This is the measurement from the shock collar to the lower end of the shock body. Increasing this measurement will lower the ride height and tighten the car up. Decreasing this measurement will have the opposite effect.

Spring Rate: This is the rate of the left-front spring. Increasing this will help the car turn and lowering the spring rate will tighten the car up (move the handling balance toward UNDERsteer.)

Camber: This is the adjustable angle (left to right) of the tire to ensure you have the maximum amount of tire on the ground while cornering. On ovals, where the car is always turning left, this setting will be in the positive numbers, so that as the car rolls in the turn, the tire stands up and generates maximum grip. Note that too much camber can overheat the tire's outer edge and in the end result in loss of grip.

Caster: This is the adjustable angle of the spindle (front to rear), which allows the left-front tire to be forced into the race track surface. Most oval cars maintain somewhere around a two-degree split in caster left to right. The left will typically have a lower caster setting than the right. Less caster in the left front will help the car turn, particularly from corner entrance through the center of the corner. Closing the split between left and right will tighten the car, while increasing the split will loosen it.

Shock Stiffness: Shock stiffness is the measure of how much force is required to compress the shock. This setting works much like the springs themselves. Changes in shock stiffness affect the car much less than increasing spring-rate by 50 or 100 pounds, which means that shock adjustment can be a good way to dial the car in. A stiffer shock on the right-front or left-rear will increase the dynamic wedge while cornering and make the car more stable and reduce rotation. A stiffer shock on the right-rear or left-front of the car will decrease the dynamic wedge while cornering and increase rotation.

1.

Right Rear:

—

Corner weight: This is the weight of the right rear as it would show on a scale. Increasing right-rear corner weight helps the car turn.

Ride height: This is the height of the right-rear corner of the car's chassis. Raising the ride height will reduce rear grip.

Shock-collar offset: This is the measurement from the shock collar to the lower end of the shock body. Increasing shock-collar offset raises the ride height and tightens the car (changes the handling balance toward understeer.) Decreasing the offset has the opposite effect.

Spring Rate: This is the rate of the right-rear spring. Increasing the spring rate helps the car turn, while lowering it has the opposite effect.

Shock Stiffness: Shock stiffness is the measure of how much force is required to compress the shock. This setting works much like the springs themselves. Changes in shock stiffness affect the car much less than increasing spring-rate by 50 or 100 pounds, which means that shock adjustment can be a good way to dial the car in. A stiffer shock on the right-front or left-rear will increase the dynamic wedge while cornering and make the car more stable and less likely to rotate. A stiffer shock on the right-rear or left-front of the car will decrease the dynamic wedge while cornering and allow the car to rotate more.

1.

Right Front

—

Corner Weight: This is the weight of the right front as it would show on a scale. Increasing this number tightens the car.

Ride Height: This is the height of the right-front corner of the car's chassis. Raising the right-front ride height can increase front grip if the right-front tire is being overloaded, resulting in an adverse camber effect. Optimum ride height can vary greatly depending on other chassis settings and the degree of banking at a particular track.

Shock-collar Offset: This is the measurement from the shock collar to the lower end of the shock body. Increasing right-front shock-collar offset lowers the ride height and helps the car turn. Decreasing shock-collar offset will have the opposite effect.

Spring Rate: This is the rate of the right-front spring. Increasing the right-front spring rate tightens the car, while lowering it has the opposite effect.

Camber: This is the adjustable angle (left to right) of the tire to ensure you have the maximum amount of tire on the ground while cornering. On ovals the right-front tire should be negative, so that as the car rolls in the turn, the tire stands up and produces maximum grip. Too much camber overheats the tire's inner edge, which reduces the tire's total grip.

Caster: This is the adjustable angle of the spindle (front to rear), which allows the right-front tire to be forced into the race track surface. Most oval cars require approximately a two-degree split in caster left to right, with the left front running a lower caster setting than the right. Less caster in the right-front will help the car turn, particularly from the entrance to the turn through the center. Closing the split between left and right will make the car more stable and possibly tighter.

Shock Stiffness: Shock stiffness is the measure of how much force is required to compress the shock. This setting works much like the springs themselves. Changes in shock stiffness affect the car much less than increasing spring-rate by 50 or 100 pounds, which means that shock adjustment can be a good way to dial the car in. A stiffer shock on the right-front or left-rear will increase the dynamic wedge while cornering and make the car more stable and less likely to rotate. A stiffer shock on the right-rear or left-front of the car will decrease the dynamic wedge while cornering and allow the car to rotate more.

1.

Left Rear

—

Corner Weight: This is the weight of the left rear as it would show on a weight scale. Increasing left-rear corner weight tightens the car (changes the handling balance toward UNDERsteer.)

Ride Height: This is the height of the left-rear corner of the car's chassis. Adjusted in isolation, changes to ride height will affect cross weight. See Shock-collar Offset for more info about changing the ride height.

Shock-collar Offset: This is the measurement from the shock collar to the lower end of the shock body. Increasing left-rear shock-collar offset lowers the ride height and helps the car turn. Decreasing left-rear shock-collar offset will move the handling balance toward UNDERsteer.

Spring Rate: This is the rate of the left-rear spring. Increasing the rate of this spring will tighten the car, while lowering the spring rate will move the handling balance toward oversteer.

Shock Stiffness: Shock stiffness is the measure of how much force is required to compress the shock. This setting works much like the springs themselves. Changes in shock stiffness affect the car much less than increasing spring-rate by 50 or 100 pounds, which means that shock adjustment can be a good way to dial the car in. A stiffer shock on the right-front or left-rear will increase the dynamic wedge while cornering and make the car more stable and less likely to rotate. A stiffer shock on the right-rear or left-front of the car will decrease the dynamic wedge while cornering and allow the car to rotate more.

6) Racing Terms

AERO – Abreviação para aerodinâmica. Ajustes de aerodinâmica em um carro afetam o comportamento do carro em velocidades onde o fluxo de ar é alto o suficiente para criar peso nas rodas.

ANGLE OF ATTACK "Ângulo de Ataque" – É o ângulo de inclinação da peça aerodinâmica em relação ao sentido do fluxo do ar. Aumento no ângulo de ataque cria mais peso e arrasto.

APEX "Vértice" – Ponto dentro da curva onde o carro está no ângulo correto para uma saída perfeita para a próxima parte da pista.

ASPECT RATIO – Relação entre a altura do perfil do pneu e a banda de rolagem. *Aspect Ratios* menores descrevem pneus que têm perfil baixo e banda de rolagem larga, e maiores com perfil alto e banda de rolagem fina.

BALANCE "Equilíbrio" – O equilíbrio frontal e traseiro da aderência é determinado pela configuração do chassi, aerodinâmica e equilíbrio de freio (Brake Bias). A configuração do Chassi, assim como a aceleração e frenagem, influenciam a dirigibilidade em qualquer velocidade. Ajustes aerodinâmicos afetam o equilíbrio, principalmente, em curvas de alta velocidade. Equilíbrio do freio (Brake Bias) determina quais pneus travarão primeiro durante a frenagem.

BIND – Ângulo excessivo de giro do volante que limita a aceleração do carro.

BLIP – Técnica de redução de marchas para motores que requerem que o giro do motor seja elevado ao ponto de que a velocidade do motor seja igual à velocidade do carro na pista para que, consequentemente, seja possível um encaixe suave na próxima marcha mais baixa. O "Blip" é um rápido toque no acelerador normalmente feito com a técnica de punta-taco (heel-and-toe).

BRAKE BIAS "Equilíbrio do Freio" – Proporção de força aplicada nos freios dianteiros e traseiros. Nos carros de corrida mais modernos, o equilíbrio do freio (Brake Bias) é ajustável de dentro do carro para compensar mudanças nas condições da pista, carga nos pneus e arrasto aerodinâmico.

BRAKE POINT "Ponto de Frenagem" – Pontos dentro ou próximo à pista que os pilotos usam como referência para iniciar o processo de frenagem. Pilotos inteligentes começam com pontos mais antecipados e experimentam a frenagem mais adiante até que a velocidade de saída da curva é comprometida. Isso é chamado de "Procedimento para encontrar o ponto de frenagem".

BRAKE-TURNING "Frear-virando" – Combinando a frenagem e o giro do volante simultâneamente em uma área que

está além do ponto que deveria começar a virar o volante. Trata-se de um uso eficiente da capacidade de tração do pneu que permite que o piloto freie dentro da curva. Também ajuda o carro a virar em uma curva fechada.

BREATHING THE THROTTLE "Aliviando o Acelerador" – Um alívio gradativo do pedal do acelerador para diminuir o excesso de aceleração lateral que faz com que as rodas dianteiras derrapem ou evitar o TTO (TRAILING THROTTLE OVERSTEER) que acontece quando as rodas traseiras perdem aderência por excesso de aceleração.

Interpretação do Original: A lift (in varying degrees) off the throttle to neutralize under steer or induce TTO.

CF "Coeficiente de Fricção" – Uma maneira de comparar a aderência dos pneus de um pro outro. É uma medida de proporção do que o pneu converte de carga descendente gerada pela aerodinâmica, massa, frenagem em tração.

CG "Centro de Gravidade ou Centro de Massa" – Um ponto no carro onde a massa está concentrada.

CHOP – Entrada abrupta na curva para evitar uma ultrapassagem. "Fechar a porta".

COMMAND FLAG "Bandeira de Comando" – Bandeira solicitando ação por parte do piloto.

COMPROMISE CORNERS "Curvas comprometidas" – Uma tomada de curva que você compromete ou modifica o traçado para ter vantagens em outra curva.

CONSTANT RADIUS CORNERS "Curvas de Raio Constante" – Curvas que se assemelham a um arco perfeito do início ao fim.

CONTACT PATCH "Área de Contato" – Parte do pneu que está em contato com a pista em um determinado momento.

CORNER ENTRY "Entrada da Curva" – Área na pista que está entre o ponto de frenagem e onde aceleração é iniciada.

CORRECTION "Correção do Volante" – Ação para corrigir uma derrapagem. O piloto vira em direção ao lado que a traseira do carro está derrapando.

CPI – O Índice de Segurança (Safety Rating) do piloto é relacionado à média de Curvas Por Incidente (CPI). Cada pista tem um número definido de curvas. Por exemplo, Lime Rock Park tem 7 curvas. Se você tiver 1 ponto de incidente em cada volta, seu CPI será igual a 7. Se você dirigiu 100 voltas, com apenas 1 incidente, seu CPI deverá ser 700.

CPR – A técnica de conserto envolvendo **Correção**, **Pausa** e **Restauração**.

CRAB/CRABBING "Caranguejar" – Derrapando gradualmente em direção a parte interna da curva e sacrificando o raio da curva. Caranguejar é um sintoma de olhos lentos e mãos lentas, e resultam em uma antecipação de chegada ao vértice da curva (APEX).

DAMPER "Amortecedor" – Limita a frequência do movimento da mola. Sozinho não consegue suportar o peso do carro.

DECREASING RADIUS CORNER "Diminuindo o Raio da Curva" – Uma tomada de curva onde a primeira sessão da curva tem um raio maior do que o segundo.

DEEP/GOING DEEP – Frear o mais próximo possível da entrada da curva.

DIVE-BOMB "Mergulho"– Atrasar muito a frenagem e mergulhar na tentativa de ultrapassagem. Atitude suicida.

DOUBLE-CLUTCH "Dupla Pisada na Embreagem" – É uma técnica de redução de marchas usada para que manualmente acelere a troca de marchas em carros com transmissão não-sincronizada. Não é usada em caixas de marcha sequenciais.

DRAFT "Vácuo" – Fazer uso do menor arrasto aerodinâmico criado pelo carro da frente de modo a aproximar e ultrapassar. Também conhecido como "pegar o vácuo".

DROP WHEELS – Ato de dirigir com uma ou mais rodas do carro fora da pista.

DUMP SHIFT – Pular marchas no momento da redução. Normalmente indo direto da última marcha para a primeira, ao invés de reduzir de marcha em marcha.

EARLY APEX –

An early apex requires additional steering input beyond the clipping point of a corner. This is generally the most common line mistake, but “early apexing” can be used if there is an increase in elevation and/or cornering grip after the apex.

EXIT SPEED “Velocidade de Saída” – Velocidade com a qual o carro sai da curva.

FAST HANDS “Mãos Rápidas” – Girar o volante ligeiramente.

FLAGS “Bandeiras“ – Usadas na comunicação com o piloto.

FLAT/FLAT OUT – Nunca tirar o pé todo. Também compreendido como dirigir no limite absoluto, deixando nenhuma margem para erros.

FRICTION CIRCLE – Um gráfico usado para mostrar as capacidades máximas do pneu nas três forças que ele gera: Freiando, Virando e Acelerando.

G (g) “Força G” – Força gravitacional. É usado como ponto de referência para comparar aceleração que um carro gera durante uma frenagem, curva e aceleração.

GRID – Posições de largada no início da corrida.

GRIP – A aderência dos pneus durante a frenagem, curva e aceleração. Geralmente medida em unidades de Força G.

HAIRPIN – Uma curva muito fechada e relativamente lenta com mais de 120 graus.

HEEL AND TOE “Punta-Taco” – Processo que vista manter o pedal do freio pressionado enquanto faz toque no acelerado (Blip) para reduções de marcha. Trata-se de usar duas partes do pé direito (superior e inferior) para dividir as pressões nos pedais. É uma habilidade essencial para todos os grandes pilotos que querem encurtar os pontos de frenagem e fazer voltas mais rápidas.

HOOK – A spin generally to the inside of a turn. This is the most common spin in racing. Differs from a “second reaction hook-slide.”

HOOK SLIDE – The second-reaction slide.

INCREASING RADIUS CORNER “Aumentar o Raio da Curva” – Uma tomada de curva onde o raio da primeira parte é mais curto do que o raio da última sessão.

INFORMATION FLAGS “Bandeiras de Informação” – Bandeiras de avisos da pista.

IRATING – iRating é a medida da sua habilidade comparada com outros pilotos do iRacing.com.

KINK – Uma balançada na pista, normalmente em trechos retos da pista.

LADDER SYSTEM – iRacing.com`s unique system that can take drivers from a racing school all the way up to motorsports top ranks

LATE APEX – A clipping point on the inside of a turn that permits a decrease of steering angle during the second half of a corner. Generally used to permit acceleration, especially if grip is decreased for any reason in the last part of a turn.

LEAD-FOLLOW – A method used to learn the racing line, where the driver follows an instructor around the race track.

LIFT – Coming off or reducing throttle.

LINE – The optimum path around the racetrack. The line can vary with track conditions and the type of racecar being driven. Other variables include elevation change, pavement change, and how well a car turns into a corner.

LOAD TRANSFER – The change in the vertical down force on a tire that results from braking, turning or accelerating.

LOCKUP – Occurs under braking when a tire stops rotating. Loss of steering control, flat-spotted tires, and a 30% decrease in braking traction are the results of lockup. Causes include over-braking, improper brake bias, or crabbing the entry into a corner.

LOOSE – Synonymous with oversteer.

MAINTENANCE THROTTLE – Throttle application intended to maintain the current speed of the car, and thereby settle the balance of the chassis.

MODULATION – Changing the pressure on the brake or throttle in an effort to keep the tires near, but not over, their traction limits.

NEUTRAL HANDLING – When both front and rear sets of tires operate in the same slip-angle range when a car is cornering at the limit.

OUT-BRAKING – Braking later than another driver.

OVER-REV – High RPM in a range that is likely to cause damage to an engine's internal components.

OVERSTEER – Synonymous with "loose," occurs when the slip angle of the rear tires is greater than the slip angle of the front tires when a car is cornering at the limit. Numerous types: Steady state, trailing throttle, trailing clutch, power, brake bias, and aerodynamically induced OVERsteer are all examples. Another description: The car is turning more than the steering input or radius would dictate.

PACE LAP – The warm-up lap prior to a race start.

PAUSE – During a skid, that moment when the movement of the rear of the car toward the outside stops. The springs are about to rebound and transfer weight toward the inside tires. This precedes the Recovery phase of CPR. Also described as the moment during a skid when the rotation of the spin is "caught" and converted to a sideways slide.

PINCHING – Adding steering input to a car when it's cornering. Most frequent in the second half of the corner to recover from an early apex, adding acceleration too soon or a poorly timed pass.

PIT LANE/HOT PITS – An area adjacent to the racetrack where cars are worked on during practice, qualifying or a race. "To pit" means to make a pit-stop.

PITCH – Changes of the front-to-rear ride height; also, the angle of attack of a car in response to acceleration and braking.

POLESITTER – The fastest qualifier.

RECOVERY – Recovery is the third phase of skid control (CPR). As a slide stops, the outside springs unload, transferring weight to the inside tires. Good drivers know that they must straighten the steering wheel to prevent a second-reaction hook-slide.

REDLINE/REV LIMIT – The maximum RPM depicted on the tachometer that an engine can turn without damage to its internal components.

REFERENCE POINT – Any point on or beside the racetrack that a driver uses to trigger some action; turning in, apexing, brake application point, etc.

REVS – Term used to describe the RPM (revolutions per minute) of the engine.

ROAD CAMBER – The angle of the road surface relative to the horizon. Positive road camber ("banking") helps the car`s cornering force. Negative camber reduces the grip of the car.

ROLL – The upward or downward movement, left or right along a car's centerline, in response to cornering forces.

ROLLCENTER – A point in space determined by suspension geometry that the CG rolls around at each end of the car.

ROTATION – Deliberate OVERsteer caused by the release of the brakes during the trail-braking phase of brake turning.

RPM – Revolutions per minute.

SCCA – Sports Car Club Of America, a sanctioning body.

SECOND REACTION – The rebound of the chassis toward the inside springs after a slide stops. Must be countered by the

Recovery phase of CPR to prevent a hook-slide.

SEGMENT TIME – The time it takes to drive from point to point on a section of racetrack.

SEQUENTIAL TRANSMISSION – A fast shifting, constant-mesh, motorcycle-type gearbox that shifts directly to each gear without going through neutral.

SHAVED TIRES – Street tires can be shaved so that their tread depth is greatly reduced to make them race-ready. This prevents the tire from overheating and provides more traction.

SIGHT PICTURE – A visual template that drivers use to locate themselves precisely on the racetrack. After using The Procedure to Find the Line, a driver takes a visual snapshot of each turn. He/she now will know where to be in every turn and be able to catch mistakes early.

SLIP ANGLE – While cornering, there is a difference between the direction that the centerline of the wheel is pointing and the direction that the tire is traveling. This difference is measured in degrees and referred to as slip angle. Tires have a range of slip angles where they deliver their maximum level of cornering traction.

SLIPSTREAM – The area of clean air behind a moving car. Also defined as following closely in the draft behind other cars.

SLOW HANDS – The opposite of “fast hands.”

STACK-UP – At the start of the race, the tendency for all the cars to arrive in the first turn at the same time.

STEERING LOCK – The maximum degree of steering input available on a car.

STRAIGHT (“straightaway”) – Self-explanatory, except that if the portion of the circuit can be driven as fast as the car can go, the road doesn`t necessarily have to be perfectly straight to be considered part of the straight-away.

SWAYBAR/ANTI-ROLL BAR – An adjustable suspension device at one or both ends of a car that limits weight transfer. Some are cockpit actuated. Sway-bars control the rate of chassis roll relative to the suspension.

SWEEPER – A fast, “sweeping” corner.

TACHOMETER (“tach”) – Device for measuring engine speed in revolutions per minute (RPM).

TFTS – Too Fast, Too Soon.

THE PROCEDURE – The method of working your way up to the limit by starting off conservatively and taking small, incremental steps to increase your speed.

THRESHOLD BRAKING – Using 100% of a car`s braking capability while braking in a straight line. At the “threshold" limit, the tire will be revolving approximately 15% slower than it would be if freely rolling over the road.

THROTTLE – The “gas pedal.”

THROTTLE APPLICATION POINT – The point in a turn where a driver begins to apply power to drive away from the corner.

TIGHT – Synonymous with UNDERsteer and “push.”

TIRE PERFORMANCE CURVE – A graph to show a tires grip and slip angle are related.

TOW – See “Draft.”

TRACK-OUT – The point that the car touches the outside edge of the road at the exit of a corner. Or the point in a corner when the hands are straight and there is no cornering load.

TRAIL-BRAKING – A gradual release of the brakes during brake-turning that leads to “rotation” at the limit.

TRAILING THROTTLE OVERSTEER (TTO) – OVERsteer caused by lifting off or “trailing” the throttle when the car is near its cornering limit.

TURN-IN – The point at which the driver first turns the steering wheel, transitioning the car from the straight into the

corner.

TYPE ONE TURNS – Corners that precede long straights. These are the most common types of turns and generally require a late apex to maximize exit speed.

TYPE THREE TURNS – Set-up (or "compromise") turns. Always precedes Type One Turns. These are the most challenging corners since you must know where to go slow to turn a fast lap.

TYPE TWO TURNS – Corners that come at the end of long straights where carrying entry speed produces a better lap time.

UNDERSTEER – Synonymous with "push" and "tight." The slip angle of the front tires is greater than the slip angle of the rears when the car is cornering at the limit. The car is turning less than the steering input or radius would dictate.

WEIGHT TRANSFER – Also Known as "Load Transfer." The lateral and longitudinal movement of the mass of the car as determined by the driver's inputs.

YAW ANGLE – The angle between the centerline of a car and the direction the car is traveling when cornering.

7) iRacing Setup Guide Quick Reference Chart

The attached Quick Reference Chart offers a color-coded "cheat sheet" providing suggested setup adjustments to address general handling issues. Remember, there are no absolutes. Each adjustment involves compromise between intended results and side-effects. Be patient and make changes one at a time.

Below is an example of how to use the Quick Reference Chart.

EXAMPLE:

Upon completing a few test laps, you conclude that your car needs a big addition of FRONT GRIP.

Find the FRONT GRIP column in the Quick Reference Guide.

Following the column down; all the areas in green represent changes that would increase the FRONT GRIP.

For example, we pick TIRE PRESSURE/ FRONTS/ decrease (-).

By then following the row to the right one can quickly reference other characteristics of decreasing FRONT TIRE pressure.

In this example the RED box indicates a potential loss of stability. Understand that a loss of stability may show-up as an OVERsteer condition and be interpreted as a loss of performance in the REAR of the car. But in fact it may be a situation where the increase in FRONT performance overpowered the REAR.

Also, by continuing to scroll to the right, into the "Most Affected" part of the table, we see that every part of corner sequence is significantly affected, indicated by the lightly-shaded boxes. The Mid-corner section of the corner would be the *most* affected as indicated by high-lighted box.