SCALING A RACE CAR MADE SIMPLE

Scaling your race car is arguably one the most important practices that you can do to increase your chance of visiting victory lane. Proper chassis set up requires that the weight balance is set correctly for the car, driver and track conditions. In order to achieve proper and repeatable weight balance a quality set of electronic scales will need to be obtained.

Before you begin the scaling process you should make sure that the car is race ready. Fluid levels need to be topped off, stagger & tire are pressure set, ride heights adjusted, Caster adjusted, Camber set, rear end square and the toe checked. You will also need to take advantage of the maximum left side weight and check to see if your total weight is within the rules and the front to rear balance is where you and your chassis builder want it. Emphasis should be placed on being race ready before you begin the final scaling procedure as all of these factors will have an effect on the end result.

Now that you are ready for your final scaling procedure you will need to find a level area to weigh the car. Most garage floors vary by quite a bit. Spend a few minutes with a good level and straight edge and mark four spots on the floor that you can use each time you want to scale the car. Make sure that you mark the floor to match up with your wheel base and track width.

Should the floor have low spots you can use simple shims to make all four scale pads level or utilize some leveling trays to speed up the job. Mark the shims or trays with LF, RF, LR, RR so that you can quickly repeat the process each and every week. Consistency is the goal when scaling so weighing the car in the same spot each and every week will improve your chances of having a great handling car.

Now that you have a level surface you can roll the car into position. Set the scale pads next to the appropriate tire and hook up the cables. Make sure that the cables are plugged into the correct pad and turn the scales on. Check that there is no weight on the scale pads and press the zero button. The control box should now read zero and you are ready to place the pads under the car.

Jack up one side at a time and slide the pads under the tires. Place the car in gear or use a stop to keep the car on the scales. Verify that the sway bar is disconnected or completely neutral

with plenty of slop. At this point, give the rear of the car a firm settling by placing your knee on the rear bumper. Then do the same at the front.

After settling the front and rear I like to grab the roof roll bar and shake the car several times. I try to let go right in the middle. By settling the car and shaking the roof bar you are helping to insure that the shocks are not hanging up and that you have worked out any small binds in the suspension points. Try to do the settling procedure consistently as this will help you obtain repeatable results. Settle the car after each time you raise it with a jack or make an adjustment.

You can now record your wheel weights, partial weights and percentages. Check that the front to rear balance is correct and that the left side and total are where they need to be. If not then move the lead to the appropriate spot until you are happy. Readjust the ride heights if you have to move lead around.

Now you can check the cross weight. If you want to add cross weight put a turn in the right front and left rear and take a turn out of the left front and right rear. On non coil over cars you may need to go two turns on the rear for every one turn on the front. By adjusting all four corners you will help maintain your ride heights.

Now you can set the sway bar. With the car still on the scales you can see exactly how pre-load you are putting on the bar. Record your final settings and you are ready to go.

COMMONLY ASKED QUESTIONS

■ Should you weigh with the driver in or out?

You can do it either way as long as you consider the variables. Personally, I like to see the driver in the car during the set up process as he is going to be in the car when it goes around the corner. Driver weight tends to vary a bit so having the driver in the car insures the most repeatable results.

You can weigh without the driver as long as you consider the variables that will change. As long as you factor ride height changes and the weight differential scaling without the driver can work fine. It is really a matter of personal choice.

How level do the scales need to be?

We get asked that a lot. For optimum results the closer to exact the better when it comes to level. Sometimes you can compromise. Picture a thick piece of flat glass with scale pads resting on top. Start with the glass perfectly level and your results will be perfect. Now take the glass and lower the front by one inch. The four scale pads are still in the same plane in relation to each other on the glass. In this scenario the effect from the front being lower will be very small. You can picture the same thing lowering the left side by one inch and still get good results.

Now picture a ½" shim on the glass under the Left Rear and Right Front corners or just under any one corner. Your scale numbers will go nuts. The shims will be shown as cross weight on the scales. The bottom line is that you need to maintain scale pads within the same plane. Raising one corner or opposing corners is going to affect your readings. In general, it is best to keep the scales as level as possible.

Do I have to re-zero the scales if I make a change?

Longacre Computerscales® allow you to make as many adjustments as needed without re-zeroing. Simply make your adjustments, settle the car and record your results.

Can I change the left side or rear weight by turning the jack screws?

You can turn all day and you will not move the left side or rear weight with the jack screws. To make changes to Left side or Rear percentages you will need to move lead or other mass within the car.