Drag Suspension HEIGHT & WEIGHT Setup

References: 9/13/2010 RDA

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We assume here that you have already "SQUARED" the car - that the rear axle is square to the chassis, centered left to right and that the pinion angle and 4-link's I.C. (Instant Center) are properly adjusted.

AREA setup

1 Find a FLAT area in the shop where ALL weight measurements will be made.
2 Mark the exact place where EACH scale will be positioned - use duct tape or paint.
3 If you can afford it - The best method is to pour a new epoxy pad for the whole area.
Otherwise, don't' worry about it IF this is the ONLY place you will set up you car.

COMMENTS
If there are any low areas, you can redo the area so that at least the scales are level with each other.
Using a water-level (very handy & cheap at a hardware store), find out how level the area is.
There are "thin" epoxies made just for this purpose that will "flow" to be level all over before hardening.
If time or money prevent this - use shims to get four (4) areas exactly level with each other.
Make them large enough so you can also use them for frame to ground measurements & glue them down.

PREPARATION

4 Disconnect ONE END of the upper-right side (passenger) 4-link rod.
Make sure that all the 4-link locknuts are tight on the 3 remaining links.
5 Disconnect ONE END of one of EITHER rear sway-bar (torsional anti-roll bar) links.

We TEMPORARILY disconnect ONE of the 4 links so it can't transmit any weight (which would greatly confuse this process) but will does locate the rear end as required.
In a 4-link drag suspension, the entire rear end can act somewhat like a torsional anti-roll bar - ANY body-roll has to TWIST the frame and even the entire axle in between the 4-links.
Torsional anti-roll bars are very stiff, transfer weight and make your life a NIGHTMARE if not disconnected during setup. We re-connect it NEUTRALLY after EVERYTHING is done.
We also disconnect the sway-bar for the same reasons. It is a lot easier to see and adjust the wheel weights if they are disconnected.
If you want to get a HEADACHE - just try adjusting wheel weights with either of these links connected!

BASIC setup

6 Adjust the REAR coil-over springs so they are THE SAME on both sides
(adjusting nuts should both be same distance from the bottom of the shock).
7 Adjust the FRONT strut springs so they are THE SAME on both sides
(adjusting nuts should both be same distance from the bottom of the strut).

This will bring the car close to straight, even & square.
If you are going to reset your 4-link I.C. (Instant Center) settings, do it now.
Adjusting BOTH front (or BOTH rear) springs/coil-overs at the same time, up or down by the same amount, **will raise or lower the car without changing wheel weights.**

BEFORE you start

8 Place car on scales.
Be sure THE DRIVER and ALL the "race-ready" weight it will carry (liquids etc) are in place.

Weighing the car with anything other than race-ready weight is a waste of time that will "get you " later.

Ride-Height MEASUREMENTS

9 Measure ride-heights (usually frame to ground) on all 4 corners - **write them down**.
10 Calculate how much each corner must be raised or lowered to get the proper ride-heights.
NOTE: Always raise the chassis to take the weight OFF the springs before adjusting them.
Then, set car back on scales & bounce it a bit before taking ANY measurements.
11 Make your ride-height adjustments to all 4 corners.
12 Confirm ride heights are correct. Fine-tune as required to get it RIGHT!

EX:

	Goal	Now	Diff	Goal	Now	Diff	
LF	+3.000	+2.750	+0.250	+3.000	+3.125	-0.125	RF
RF	+7.500	+7.125	+0.375	+7.500	+7.750	-0.250	RR

Some find it A LOT EASIER to change 2 adjacent wheels at a time because it doesn't affect the other 2 - Do it in steps:
EX: Raise LEFT .250, Lower RIGHT .125, Lower REAR .125

NOTE: Most coil-overs: 1 turn = 1/8", Konis about .100", MagneShocks = 1/4", Penske & Ohlins are finer thread.
The chassis often moves MORE or LESS than the adjuster due to leverages (shocks behind rear wheels, IFS etc)
If you find that you can only get 3 of the 4 to come out right then the floor is not FLAT **or** the chassis is twisted.
If it's the frame: either fix the frame or merely take the DIFFERENCE into account as follows:
Most choose to keep the LF reading on 'spec' and let the RF fall where it falls. Some change the spec for the RF.

Weight MEASUREMENTS

13 Weigh all four wheels (with DRIVER) and **write the individual weights down**.
14 If both REAR wheels weigh within 10 lbs - skip on to #28.

EX:

LF	830	850	RF
RF	735	635	RR

BE SURE to "bounce" the car up & down a few times to settle the shocks & suspension after EACH adjustment to get accurate weights.
If you want to place a "driver substitute" weight in the seat - do it now.
Re-check and adjust the "driver substitute" weight until you get the exact same results as with the real driver.

GOALS

15 The 1st goal is to: **Get both REAR weights EQUAL**.

Our 2nd goal is to: **Keep all 4 desired ride-heights.**

If the tires have equal weight on them they will both have the same traction & "push" equally for a STRAIGHT run.
There is a "torque reaction" caused the pinion gear pushing on the ring gear that DYNAMICALLY shifts weight during acceleration from the passenger to the driver side tire.
We will have to compensate for this to ensure that the weight on each tire is equal DURING the run - that will be the last step of this process.
In most "methods", ride-heights change with wheel weights, which requires compensating adjustments - you can go "back & forth" forever - getting more frustrated every time.
The following "process" is The METHOD that dramatically shortens a usually frustrating experience - wheel weights change as desired and ride-heights come out exactly right in the end.

WEIGHT-JACKING

16 Find the HEAVIEST **rear** wheel & subtract the lightest to get the difference in weights.

EX: The heaviest rear is the LF at 735 lbs.

Usually this is the LR as the driver's weight is mostly on the left side of the car.
Weight Jacking does NOT change, an any way, the weight percentages for front, rear, left or right sides.
These are determined by WHERE each item is placed in the car.
Jacking changes how much each spring "contributes" and, therefore, how much each tire carries.
The TOTAL weight between any two adjacent tires will ALWAYS remain the SAME!
We will change each wheel weight by this **"X"** amount - with this METHOD it will take only 4 steps to get EVERYTHING right.

17 Divide the Weight-DIFFERENCE by 8. **Write this down.**
We will change weights this much at a time. We'll call this **"X lbs"**

735 -635 = 100 lb. Difference
100 divide by 8 = **12.5 lb = "X"**

18 If the RR is heaviest go on to #23.

NOTE: Ride-heights on all 4 wheels will change DIFFERENTLY during each of these steps but they will ALL come "right back to go" by the 4th adjustment.

LR is heaviest:
19 Turn the RR adjuster-nut **UP** until the RR wheel gains "X lbs".
This does the 1st 1/4 of the weight change & jacks up the RR. All 4 ride-heights will appear "out of whack" - Don't worry!
20 Turn the LF adjuster-nut **UP** until the RR wheel gains another (2nd time) "X lbs".
This does the 2nd 1/4 of the weight change & jacks up the LF. Everything will appear more normal now BUT the car is higher all around.
21 Turn the RF adjuster-nut **DOWN** until the RR wheel gains another (3rd time) "X lbs".
This does the 3rd 1/4 of the weight change & brings down the RF. It will all appear distorted again BUT the car is nearly back down where it belongs.
22 Turn the LR adjuster-nut **DOWN** until the RR wheel gains another (4th time) "X lbs".
This does the 4th 1/4 of the weight change & brings down the LR. The car is COMPLETELY back where it started & belongs.
go to #28.

23 **RR is heaviest:**
24 Turn the LR adjuster-nut **UP** until the LR wheel gains "X lbs".
This does the 1st 1/4 of the weight change & jacks up the LR. All 4 ride-heights will appear "out of whack" - Don't worry!
25 Turn the RF adjuster-nut **UP** until the LR wheel gains another (2nd time) "X lbs".
This does the 2nd 1/4 of the weight change & jacks up the RF. Everything will appear more normal now BUT the car is higher all around.
26 Turn the LF adjuster-nut **DOWN** until the LR wheel gains another (3rd time) "X lbs".
This does the 3rd 1/4 of the weight change & brings down the LF. It will all appear distorted again BUT the car is nearly back down where it belongs.
27 Turn the RR adjuster-nut **DOWN** until the LR wheel gains another (4th time) "X lbs".
This does the 4th 1/4 of the weight change & brings down the RR. The car is COMPLETELY back where it started & belongs.

28 **We have accomplished our 1st & 2nd goals.**
The REAR weights are EQUAL and ride-heights are back where they started.
If ride-height, front or rear, is off a bit, you can make final, minute adjustments NOW.

Adjusting BOTH front (or BOTH rear) springs/coil-overs at the same time, up or down by the same amount, **will raise or lower the car without changing wheel weights.**

FINAL WEIGHT SETTING

29 Re-connect the Right Upper 4-bar LINK.
This should be NEUTRAL to start with - the bolt should SLIDE in with no resistance.

CONFIRM that the wheel weights have not changed - if it does you didn't get it neutral.

30 NOW, adjust the suspension to slightly PRELOAD the Right Rear (RR) tire.
SHORTEN the right-upper link by *about* ONE FLAT (1/6 of a turn).
We want to see the RR weight increase by 10 lbs and the LR decrease by about 10 lbs.
For a **STARTING Point**: The RR should be about 15-20 lbs heavier than the LR.

There is a "torque reaction" caused the pinion gear pushing on the ring gear that DYNAMICALLY shifts weight during acceleration from the passenger to the driver side tire.
This "preload" puts a little weight into the "passenger" tire to compensate for the pinion torque - This preload ONLY exists when the car is STATIC!.
When you launch the car, the pinion torque shifts the "preload" from the RR toward the LR - hopefully to cancel out the difference - both wheels end up about EQUALLY loaded.
This can vary depending on the POWER, car weight, stiffness of the chassis, rear axle, sway-bar, springs etc.
The exact amount needed can only be determined by EXPERIMENTATION / TESTING.

31 Re-connect the sway-bar (torsional anti-roll bar).
This MUST be done so it is NEUTRAL - so NO PRELOAD is on it.
Adjust its length until the bolt SLIDES in with no resistance.
CONFIRM that the wheel weights have not changed.

The sway-bar on really fast Drag Cars is very stiff - often in the range of 4,000 lb/inch - even the slightest preload will make an ENORMOUS difference in rear wheel weights.
And, the car probablywon't go straight! Futhermore, it may react unpredictably when you back off the gas!
(If you want a SURPRISE: Try putting ONE turn of preload in the link and watch how much the wheel weights change! DON'T leave it this way.)

YOU ARE DONE.

TUNING

32 If the car pulls to the RIGHT: Shorten the right-upper LINK more.
If the car pulls to the LEFT: Lengthen the right-upper LINK more.

NOTE: A "Fraction" of a "flat" will make a difference. It would PAY for you to experiment now, while still on the scales - twist the link 1 or 2 flats & see the difference.
This puts more weight on the RR tire, which drives the RIGHT side tire more.
This puts more weight on the LR tire which will drive the LEFT side more.

Once the suspension is properly set - so it goes CONSISTENTLY STRAIGHT, you will not need to adjust the link very often.

"Tricks" & WAYS TO VERIFY WHEEL WEIGHTS

33 **Spring LOADED-LENGTH:** Once the car is set up as above: Measure the "LOADED" length of all 4 springs (the actual length while carrying its load) - **write them down**).
If these lengths have changed, when the car is on LEVEL ground, then the weights MUST have changed. There is also a likelihood that the ride-heights changed too.
If ride-heights are proper and the loaded-length of a spring has changed then it likely does not have the wheel weights you expect.

Example: Spring LOADED Length

In SHOP	LF	12.000	11.875 RF
(25 lb RR wgt)	LR	11.750	11.750 RR

34 **At the racetrack**, where the pits are seldom flat, you can verify wheel weights by comparing the **FRONT** spring loaded lengths.
Don't try this with the REAR springs - variations of the axle and/or 4-link settings can make this an unreliable means of measurement.
EXAMPLE: The car had 12" long loaded length on the LF spring and 11-7/8" on the RF spring in the shop with 25 lbs of RR weight. **Call this your BASELINE.**
If, at the track this measures 11-3/4" on the LF (compressed 1/4" more) & 12-1/8" on the RF spring (compressed 1/4" less), you know that this is your **NEW "at the track" BASELINE**
(which compensates for an uneven ground surface).
If you have to reset weights you can easily reproduce the 11-3/4" of the LF & 12-1/8" on the RF to reset the weights as before.

Example: Spring LOADED Length

BASELINE	LF	12.000	11.875 RF
At TRACK	LF	11.750	12.125 RF
Difference		**-0.250**	**+0.250**

35 **In the shop:** It is a good idea to a jack different amount of weight into the rear in the shop - say an extra 25 or 50 lbs and measure how the spring LOADED lengths change.
This way you can always have a good idea of what your weights REALLY are.
Example; When you added another 50 lbs to the LR (and RR - going from 25 to 75 lbs difference from LR to RR)
the FRONT spring LOADED lengths might go from 11-3/4" & 12-1/8" to 11-5/8' (1/8" shorter on the LF) & 12-1/4" (1/8" longer on the RF).
Don't forget that any extra weight on the RR will ALSO go diagonally to the LF (and the weight loss on the LR will also come diagonally from the RF).
So you will know that an increase of 1/8" on one side & a decrease of 1/8' on the other side equates to a change of 50 lbs difference. Write all this down too - as part of your BASELINE info.

Example: Spring LOADED Length

In SHOP with 25 lb RR	LF	11.750	12.125 RF
Add 50 lb (75 lb LF & RR)	LF	11.625	12.250 RF
Difference		**-0.125**	**+0.125**

36 **WEDGE:** In a straight-axle car, if you raise the car up with a floor jack at EXACTLY the center (left to right) of the axle you can get a very accurate INDICATION of wheel weights.
If the tires are EQUALLY loaded, BOTH tires will come off the ground at the SAME time.
If NOT equally loaded, the tire with the LEAST weight will come off the ground first.
By measuring how far the first tire is off the ground when the heavy wheel leaves the ground you can determine the weight difference.
This effect is commonly called WEDGE. It comes from very old technology, when racecars used cross-leaf springs, like on Fords up through 1948.
They would put a wedge under one side of the spring which tilted it down on one side - this made the spring pick up more weight on that side and, obviously, pick up less weight on the other side.
There is NO WAY to determine wheel weights from wedge without scales. You MUST first measure the weight difference (left-to-right - wedge) on scales.
The weight difference **is proportional** to this distance.
You MUST use a "round" surface where the jack contacts the EXACT CENTER of the axle housing so it can freely "rock" from left to right (a drop of grease there makes it all the more accurate).
This 'distance" or "wedge" will vary dramatically with spring rates and chassis stiffness - BUT, it will always be proportional.

37 **In the shop:** Mark a point on the axle center - it is best to weld a small piece of metal there that has a "cupped" radius.
Then make a small stud with at round top end that will locate on the jack lift plate.
For best results, put a piece of paper or cloth under each tire first. Jack up the car till the first paper slides loose.
Note where that is and continue jacking till the 2nd paper comes loose. Measure the difference - that is your WEDGE.
EXAMPLE: If the car has 50 lbs more weight in the RR than the LR, and the LR comes 1/4" off the ground before the RR does, you will know that 1/4" = 50 lbs of RR weight.
And, you could deduce, therefore, that 3/8" = 75 lbs & 1/8" = 25 lbs.
It is a good idea to **measure the WEDGE beforehand, in your shop** (on a flat, level surface, when you know the weight difference).
This will be VERY VALUABLE later, when you are at a race track, because the pit areas almost NEVER are exactly flat.

Example: **Wedge**

In SHOP: with 50 lb RR wgt	LR	0.250	0.000 RR

38 **At the racetrack:** In a pinch, you can put a round socket wrench, laid sideways, on the jack plate and then jack up the axle on the axle center mark.
Then, when you jack up the rear axle at the exact center you will be able to see the "wedge" & measure how high the lighter tire lifts before the heavy one leaves the ground.
When you get the car in position at the track, simply jack it up, as described above, and measure the wedge. It will be different if the pit area is not flat. BUT, you can easily compensate for this.
If the car had 1/4" of wedge in the shop and it measures 1/2" at the track; all you have to remember is:
1/2" is NORMAL for the Wedge in the suspension at the track (whatever wedge you KNOW you have).
So, if you want to add more RR weight, and you have already determined that another 1/8" of wedge will do it, just jack it till you have 1/8" more (from 1/2" up to 5/8" of wedge).
You DO NOT have to disconnect the sway-bar to do this - wedge "compensates" for ALL the springs & bars - it measures the NET weight difference.

At TRACK	LR	0.500	0.000 RR
Difference		**0.250**	**+0.000**

39 **CHANGING SPRINGS:** If you ever have to change to different springs (rate or length) you can simply & easily do this & maintain your weights & ride-heights WITHOUT scales. **It can be done ANYWHERE!**
1. Only change ONE spring at a time. 2. Measure the RIDE-HEIGHT at each corner you are going to change (frame to ground). 3. Reset the exact same ride height after changing each spring.

NOTE: Some people think that they can set the weights without neutralizing the sway-bar.
There is no doubt that this can be done.
BUT, they will find it VERY difficult to set weights and maintain desired ride-heights.
AND, they may find that the weight shift that occurs when they DECELERATE (back off the gas) makes the car UNSTABLE - veers to one side or the other.

This DOCUMENT is interactive - it shows:

How to adjust these weights while MAINTAINING the proper/desired ride heights.

NOTE: You can ENTER weights for **YOUR car** in the **YELLOW** cells.
Calculated values are displayed in **BLUE.**

LF	RF			
830	850	1585	52.0 %	Cross=(LR + RF)/Total
735	635	1680 Front	55.1 %	
		1370 Rear	44.9 %	
Left 1565	1485 Right			
Left % 51.3	48.7 Right %			
Total 3050				

Front % = Both FRONTS divided by TOTAL, times 100.
Rear % = Both REARS divided by TOTAL, times 100.
Right % = Both RIGHTS divided by TOTAL, times 100.
Left % = Both LEFTS divided by TOTAL, times 100.

Cross weight is shown here for REFERENCE only - it WILL change as we go.
Cross % = Total of (LR + RF) divided by TOTAL, times 100.

These weights are typical of an Outlaw 10.5 racecar. They are for REFERENCE only.

LF	RF			
				Cross=(LR + RF)/Total
830	850	1585		52.0 %
735	635	1680 Front		55.1 %
		1370 Rear		44.9 %
Left 1565	1485 Right			
Left % 51.31	48.69 Right %			
Total 3050				

In this example, you can see that the LL (Left-Rear) weighs 100 lbs more than the RR.
The car will likely pull to the right as the LR tire will "push" about 16% more than the RR.
Also, the left side of the car weighs more than the right.
This is not uncommon as the driver's weight sits mostly on the left side of the car.

GETTING Weights & Percentages

1 Calculate your front, rear, left & right percentages.
These percentages are ONLY determined by WHERE the weight is PLACED in the car. **They will NOT VARY throughout this procedure.**
We are NOT going to "physically" MOVE any of the weight. We are, however, through "Weight-Jacking", going to change how much EACH of the springs (and tires) carries.
Weight-Jacking will NOT change ANY of these percentages - the total between any TWO ADJACENT wheels will ALWAYS remain THE SAME.

WEIGHT-JACKING

Weight Jacking does NOT change, an any way, the weight percentages for front, rear, left or right sides. These are determined by WHERE each item is placed in the car.
Jacking changes how much each spring "contributes" and, therefore, how much each tire carries. The TOTAL weight between any two adjacent tires will ALWAYS remain the SAME!

2 See which of the REAR weights is LIGHTEST. Calculate the DIFFERENCE (how much lighter it is than the other heavier wheel) and DIVIDE by 8.
(EX: In the above example the RR is lightest with 100 lbs LESS than the LR. (Dividing 100 lb by 8 = **12.5** lb.)

We will raise EQUALIZE the rear weights in 4 steps.

3 STEP 1 of 4 Our 1st goal HERE is to **raise the RR weight by** 12.5 lbs.
This will also reduce the LR weight by the same -12.5 lbs., which reduces the rear difference by 25.0 lbs., bringing us 2/8 (or 1/4) of the way to our rear goal of 100 lbs. difference.
4 Turn the RR Adjuster-Nut UP (to "lift" the car) ONE (1.00) turn.
5 Bounce the car and note how the weights have changed. This wheel's weight should have gone UP. Lets assume here that each wheel changed by + or - 10 lbs.

Note how many "REAR pounds per turn" it changed (10 lbs / REAR turn in this example). You will use this for ALL future **REAR** adjustments (unless you change ANY of the 4 spring rates).
The other rear wheel weight should have gone DOWN by an equal amount. And, the "REAR TOTAL" should be THE SAME as before (because you have NOT SHIFTED any weight to the left, right, forward or backward).
If the total of the two is NOT THE SAME - don't panic - unless it varied by more than 5 lbs. Most scales have small resolution errors but more than +/- 5 lbs can be a problem.
NOTE: that the DIAGONAL wheel went up by the same amount and the other front went down by the same amount - ALL FOUR weights changed EQUALLY.
Notice that our Front, Rear, Left & Right side percentages haven't changed - they should be EXACTLY the same (any of these totals should not vary more than 5 lbs if the scales are good).
You KNOW how much one turn changed the weight (10 lb here), and we need 12.5 lbs. So, we calculate it will take 1.250 turns to get a 12.5 lb. difference (12.5 / 10 = 1.25).
6 We have already turned it 1.00 turn so turn it 0.25 MORE turns. The weight should be very close to 12.5 lbs more than when we started (635 becomes 647.5 lbs).
Notice that the other 3 wheels also changed by + or - 25 lbs.:

STEP 1 of 4

LF	842.5	837.5 RF
LR	722.5	647.5 RR

At this point we raised the RR, slightly raised the LR & RF & lowered the LF
Don't worry about the ride-height changes now - we will fix them later.
Difference = 75.0 lbs The total has not changed 3050.0 lbs.

6 STEP 2 of 4 Now, go to the FRONT DIAGONAL wheel (**LF**) and repeat step 15 (adjust it up 1.00 turn).
7 Now note how many "FRONT pounds per turn" it changed (it may be more - lets assume 15 lbs / FRONT turn in this example). You will use this for ALL future **FRONT** adjustments (unless you change ANY of the 4 spring rates).
Now, just like in step 17, we need to calculate how many turns we need on this wheel. In this example it changed 15 lbs. and we only needed 12.5 lb. SO; we only needed 0.83 of a turn (12.5 / 15 = 0.83).
8 So, now back it up -0.17 turn so we have only RAISED it a total of 0.83 turns.
The weight on the LF will have gone up ANOTHER 12.5 lbs and the other 3 wheels also changed by + or - another 12.5 lbs.

STEP 2 of 4

LF=	855.0	825.0 RF
LR	710.0	660.0 RR

Difference = 50.0 lbs The total has not changed 3050.0 lbs.

At this point the whole car will be higher than desired (EQUALLY at all 4 corners) because the adjustments we made at both the Front & the Rear raised the car). AND, we will be half-way to our weight goal.

9 STEP 3 of 4 Now go to the **RF.** So, we will continue adding weight to the RR but now we will make adjustments that **LOWER** the car in amounts EQUAL to what we raised it in the first 2 steps.
10 Go to the RF and LOWER the Adjusting-Nut by the same amount we raised the LF: Back it up 0.83 turns.
The Weight on the RF will go DOWN by 12.5 lbs. and the other 3 wheels will also have changed by + or - another 12.5 lbs.

STEP 3 of 4

LF	867.5	812.5 RF
LR	697.5	672.5 RR

Difference = 25.0 lbs The total has not changed 3050.0 lbs.

At this point we are 3/4 toward our goal and nearly back to the original DESIRED ride height.

11 STEP 4 of 4 STEP 4 of 4 48.6885 % Cross-weight (REFERENCE only)
12 Now, go to **the LR** and LOWER the Adjusting-Nut by the same amount we raised the RR: Turn it **DOWN** by -1.25 turns.
The Weight on the LR will go DOWN by 12.5 lbs. and the other 3 wheels will also have changed by + or - another 12.5 lbs.

LF	880.0	800.0 RF
LR	685.0	685.0 RR

Difference = 0.0 lbs The total has not changed 3050.0 lbs.

We have accomplished our goal on rear weights and the ride height should be exactly where it started. If it is off a bit we can make minute adjustments to get it perfect.

13 Re-connect the Right Upper 4-bar LINK. This should also be NEUTRAL to start with - the bolt should SLIDE in with no resistance.
CONFIRM that the wheel weights have not changed.
14 NOW, adjust the suspension to slightly PRELOAD the Right Rear (RR) tire.
A good place to start is to **SHORTEN the right-upper link by ONE FLAT (1/6 of a turn).**
You will see the wheel weights change by about 20 lbs DIFFERENCE - the RR & LF will INCREASE by 10 lbs - LR & RF will DECREASE by about 10 lbs. This can vary depending on the stiffness of the chassis, rear axle and other things.
This preload only exists when the car is STATIC! When you launch the car there is a DYNAMIC weight shift from the RR to the LR as a result of the pinion trying to climb the ring gear.
So, the Preload will be reduced, disappear or go negative (the LR ends up with more weight than the RR).
The exact amount needed can only be determined by EXPERIMENTATION / TESTING.
15 Re-connect the sway-bar (torsional anti-roll bar). This MUST be done so it is NEUTRAL - so NO PRELOAD is on it - adjust its length until the bolt SLIDES in with no resistance.
The sway-bar on really fast Drag Cars is very stiff - often in the range of 4,000 lb/inch - even the slightest preload will make an ENORMOUS difference in rear wheel weights. And, the car probably won't go straight!
CONFIRM that the wheel weights have not changed. (If you want a SURPRISE: Try putting ONE turn of preload in the link and watch how much the wheel weights change! DON'T leave it this way.)

16 If the car pulls to the RIGHT: Shorten the right-upper LINK more - this puts more weight on the RR tire, which drives the RIGHT side tire more. A "Fraction" of a "flat" will make a difference.
If the car pulls to the LEFT: Lengthen the right-upper LINK more - this puts more weight on the LR tire which will drive the left side more.
Once the suspension is properly set - so it goes CONSISTENTLY STRAIGHT, you will not need to adjust the link very often.

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