

GTS Winter Update IV – Dialing in your new aero

By Scott Good

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Greetings,

Although I'm sending this to everybody in the GTS group, I recognize it (mostly) applies to only some of us. But, since more will probably follow eventually, I thought I'd share. Delete as you see fit.

Our season starts this weekend, with practice this Friday. From all the winter correspondence I've had, there are a lot of GTS drivers who have added aerodynamic enhancements to their cars during the off-season. Specifically, I'm talking about wings and splitters.

This is something I did last year and I can say from experience that this will have a big effect on your car and its ability to go faster. Once it's dialed in, I think you'll find you love it. I'm writing this, though, because I want to make sure nobody gets hurt (and nobody's car gets damaged) during the dial-in process. So, consider the following some friendly advice from someone who's been there.

What to expect

Almost everyone I talk to about adding aero wants to know where you "feel it most." The truth is, when it's correctly adjusted you don't exactly feel it anywhere. Remember, at zero miles per hour it does nothing. At whatever your car's terminal velocity is, it does the most it's going to do. In between, the effects of aerodynamic accessories increase in a relatively linear fashion.

Okay, TECHNICALLY that's probably not true. TECHNICALLY it probably increases a lot more in the upper range. However, as a driver, it's not like the amount of downforce ever takes a big jump. It's not like that big push you get in the back when a turbocharger comes on boost. With aero, it's simply that the faster you go the better it works.

But that's also the part you need to be careful about.

At Mid-Ohio, the fastest part of the track is the end of the back straight. Not only are you going mighty fast, you're also going downhill, which makes the braking just that extra bit harder. And, that hard braking shifts the weight to the front of the car, lightening the rear because, after all, that's how braking works.

If you've added a big splitter to the front of your car and not enough wing in the back, your car is going to have, relatively speaking, too much downforce in the front and too little in the rear. Unless the balance is way out of whack, though, you won't notice it in most areas of the track. Yeah, maybe it will be a little loose in turn 1, but on the whole things may feel okay. The place you'll feel the biggest effect from this imbalance, if you have it, is at the point you're going the fastest which is, of course, just before the braking area at the end of the back straight.

Actually, that's not true.

Where you'll feel the imbalance the most is just after you get hard on the brakes at the end of the back straight...at the point you are going the fastest with the hardest braking. With the braking moving the weight forward and off the rear tires, and with the aero imbalance doing the same thing, the rear end of your car can get VERY loose. And, if it is TOO loose, you could possibly lose control and bad things might ensue.

That's not what we want.

How to keep bad things from happening

To keep this from happening, all you have to do is be smart about how you approach your new tools (the wing and splitter). Unless you're a lot smarter than I was, your splitter is probably fixed. That is, you can't adjust it. So, short of getting out a saw and cutting it off, there's not a lot you can do to change the amount of front downforce on your car. Fortunately, you can adjust the rear wing.

I suggest that when you first hit the track with your new aero setup, you start with what you are pretty sure is too much rear wing. Yes, too much wing is draggy, but too much wing is also, presumably, too much rear downforce. Too much rear downforce will tend to make the car understeer which, while slow, is A LOT safer than too much oversteer. You can start with too much downforce in the rear, see how it feels, then GRADUALLY take out wing until you get it down to the right angle for the right aerodynamic balance.

How will you know if you've gone too far? The rear end will start feeling loose under braking at the end of the back straight. When that happens, put a little more wing back in.

Also, of course, work up to speed. That will actually be easier than it sounds but don't try to set a new track record until you are comfortable with what you and the car are capable of. If you're like me, what you'll discover is you'll be out there driving the way you always have and suddenly realize you've left a full car-width at the exit of the track where you used to go all the way to the curb. That's the clue that you can go faster; something that usually takes a little extra dose of courage the first time or two. And that's OK. Working your way up to more speed is a gradual thing. What matters most, though, is that you start from a point that's safe and progress from there.

If any of this applies to you and you'd like to talk about it in painful detail, come find me at Mid-Ohio (I'll be in one of the center garages). I'll be happy to help anyway I can.

Be careful out there (and have fun!).

Cheers,

Scott