

details on 323 software

Originally Posted by M-Technic

For those of you asking for a deeper explanation of the settings, I have written out a bit of a lengthy discussion on my understanding of how the 323_Stock software operates. This is based on my own research and understanding of the workings of the SP software, and it may not be 100% accurate. Solara can chime in with any corrections as he sees fit. It should give you at least a better understanding of the overall picture.

The main settings you will adjust are 9, 10, 12, 13, 14, and 15. The blank setup sheet is available at this link and it can be helpful for you to visualize what I am talking about. Here is a rundown of how they relate and operate:

----- BOOST TIMING -----

#9, #13, and #15 all cover boost timing. #13 is the RPM point where the speed control begins to add the boost timing to the motor. #15 dictates the rate which at which that boost timing is applied. It is stated in RPM per 1* of boost added. #9 is the maximum amount of boost timing it will apply after the start RPM is reached AND it adds/added 1* of boost per the boost timing acceleration setting (#15).

For example, let's say your boost timing (#9) is 40*, your start RPM is 10,000 RPM (#13), and your boost timing acceleration is 500 RPM/deg (#15). This means that:

boost timing begins to apply once your motor hits 10,000 RPM, even if you are not at WOT (wide open throttle).

it begins to apply the boost timing 1* at a time for every 500 RPM added once you have reached 30,000 RPM you will have your full 40* of boost timing [(40 * 500) + 10,000 RPM]. from this point on, as long as you stay above 30,000 RPM, the boost timing will stay at 40*.

Boost is RPM dependent only, and if you lift your throttle during a sweeper, the boost is still being applied if it is within the RPM range. Turbo does not function the same way.

----- TURBO TIMING -----

#10, #12, and #14 all cover turbo timing. #14 is the delay (in tenth of a second increments) from when you hit WOT (wide open throttle) to when it starts applying the turbo timing. #12 is the maximum amount of turbo timing it will apply, stated in 1* increments. #10 is the rate at which the turbo timing is applied, stated in degrees per tenth of a second.

In my opinion, the turbo settings are very critical because it's easy to add too much turbo too early, which just builds heat and doesn't make the car any faster (because the motor gets overwhelmed by the timing dumped on it, and can't react fast enough).

One other thing worth noting about turbo timing, is that it is not RPM dependent. It's dependent on two things: the time delay (#14), and being WOT. If either of these are not met (or are met and then lost [such as releasing the throttle at all]), then the turbo disappears completely until the requirements are met again. More on this later.

Let's do another theoretical. Let's say you are running 20* of turbo (#12), with a 0.2/s delay (#14), and a slope rate of 6*/0.1s (#10). This means that: once you hit (and hold) WOT, two tenths of a second later (0.2/s) the turbo timing will start to apply the timing will apply at a rate of 6* per additional tenth of a second (after the original 0.2/s delay) after 0.533 seconds, you will have applied all of your 20* of turbo timing, given that you stayed at WOT the whole time (0.2/s delay + an additional 0.33 for the 20* of timing to apply at a slope of 6*/0.1s)

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if you lift the throttle at all, the turbo disappears and the whole process starts from the beginning after you hit WOT again

Now as you can see, there are options for 18, 24, and 30* per 0.1/s for the turbo slope (#10). These options basically add all of the turbo instantly, and combined with a very small turbo delay (#14), means that you can add A LOT of timing REALLY fast. This is usually not desirable.

Now that boost and turbo timing have been explained, how do you gracefully merge the two together? That is tricky to answer, and it depends on a lot of factors. The brand/model of the motor, the wind of the motor, track type, traction level, ambient temperature, and your personal driving style are all large factors.

In a general sense, you want the boost timing to do most of the work on the infield of the track, and you want the turbo timing to help with the top speed on the straight away and perhaps any long sweepers or large flowing sections of your track.

If you have the turbo kicking in too quickly it can greatly add to the temperature of the motor, and may cause fading towards the end of your run. It can also cause erratic driving behavior on the infield of a track, because when you "lift" the throttle even momentarily, all the turbo disappears, and it can cause the car to "check-up." Typically I like to run about a 3:1 to 2:1 ratio of boost timing to turbo timing. However in modified, sometimes the ratio is closer, like 3:2, with the overall level of timing being much lower compared to spec motors.

When thinking of how to apply the two, keep in mind that you want boost timing to control some of the bottom end and all of the mid-range power. You want turbo to control the top end power. Notice how I said boost timing should control SOME of the bottom end? You can also apply too much boost timing too soon, just like turbo. You don't want your start RPM (#13) or your boost timing acceleration (#15) to be too early, as this can overtime the motor as well. The very beginning of the low-range power band is really dictated by your gearing (FDR) and your motor timing. These are both important factors as well. Motor timing is often overlooked in boosted setups, but it can play an important role in your overall setup.

I will not get into actual setup advice here, as it's more of a general guideline for you to understand how each setting works. Feel free to post your setup here (or send me a PM) and many of us in this thread will be more than willing to help you with your setup.

Hope this helps!

-T.J.