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Dear SRF Racers,

SCCA Enterprises has collected information regarding the set-up for the SRF car on Goodyear bias ply tires. The realities of racing tell us that much more testing will be done and that others will develop a variety of other opinions, personal set-ups and possibly completely different trends. One significant set-up change can lead to the effect of other changes being different than the comments noted here. There is more information coming and we will share it and continue to encourage our CSR's and others to share information as well.

My thoughts were to try an off the wall approach and see what someone who did not know the idiosyncrasies of the car would feel regarding car set-up. I do feel we broke through one of the potential issues by not having only current SRF drivers analyze the car on bias ply tires. Camber does not need to stay in excess of 3 degrees (or in some cases 4 degrees plus). Apparently it can feel good that way, but bias ply tires have never wanted this amount of camber and if you are willing to make more drastic changes the reward would appear to be straight line speed and stability in braking.

Following is a casual (as I requested) but very useful test summary filed by Marc Miller, an experienced professional racer and qualified set up driver. Incidentally, Marc's own company MMP Design is the creative services partner for SCCA Enterprises. (In other words if I can dream it he can make it look good).

Thanks again for the opportunity to provide this feedback to the SRF community. I browsed the forums for the past 3 weeks to help prepare for the type of feedback that would be necessary, and with the help of Mick Robinson and all the guys at RMS, I think we have a pretty good handle on the new tire.

First, the basics. Yes, it is true up until Friday, I have had a total of 4 laps in an SRF, and that was about 10 years ago. However, I have driven multiple types of cars over the years, including several testing and development roles and had a good understanding of what was expected of me going into this test. I had 4 sessions to get as much data and try as many things as possible. The goal is to give everyone a good baseline that was 1. Balanced, 2. Predictable, 3. Relatively quick, and 4. Provided even and safe tire wear and longevity.

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Erik, you and I both agreed that this tire deal would be a true success if we could prove the Goodyear was consistent and drivable, did not demonstrate an advantage when bolting on stickers compared to several heat cycle old tires, and had excellent wear characteristics. I think we proved all of these on Friday and I hope everyone agrees.

First. In true Skirmants' fashion (I take that as a compliment –ES), I'm going to straight out tell everyone the limitations of the Goodyear in an honest way.

1. This is a bias ply tire folks. Don't expect to just bolt the things on and the car to perform like it did after years of running radials. They have different characteristics and the set up IS different to get the benefit of the long tire life and good vehicle balance. (ES- while that approach can work, as others have shown, I think Marc's test shows that you are likely to save time if you take a greater initial leap, I was not sure of this but frankly hoped that it would be true).

2. They are HEAVIER and inherently a bias ply tire has more rolling resistance and slower straight line speeds due to the added weight and increased contact patch. Slow corner exit speeds might suffer, but that will be equal across the board.

3. Because the front tire is the same as the rear, it isn't a perfect fit to the more narrow wheel. This causes more tire roll, which can be overcome, and a taller profile, which will affect the rake settings you are all used to. It is doubtful that you will be able to achieve the same level of rake as you all currently run due to clearance issues of the bodywork, front and rear, while not wanting to jack the rear ride height up. But you will be able to find a good balanced setup w/o that same amount. Shoot for about .25". (ES- front roll center issues have been noted when adjusting the front all the way back down, even if bodywork adjustments are made, you likely do NOT want to simply change the rocker position to accommodate the large front tire).

4. Chris from Goodyear suggests that you run slight toe IN with the bias ply as well as considers it a good idea to scale the cars more. I will let him explain that as we didn't do either for this test due to time constraints. (ES- bias ply tires can have variation in circumference / roll out. It is normal for many other highly sensitive cars to check cross weights on every set of tires...no data to date indicates that we need to do this. If I ever get serious about competing you can bet I will have my scales set up every weekend and will tinker constantly...as any good old formula car driver does.)

THE TEST

It was planned that I start with a set of Yokohama's to get a god feel of what the typical setups and grip levels currently feel like. I also used the session to acclimate myself to the track and the car and to set a baseline lap time to gauge against the goodyears.

SESSION 1

I was able to log 9 laps and got into mid 1:37 lap times, which put me in the hunt for a good baseline time. I noted the car had a mid corner understeer, especially on throttle pick up. Instead of making a change, I just noted it as to not change our data gathering.

SESSION 2

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We bolted on Goodyears and made NO Chassis changes except cutting out the tail to get clearance. As far as setup goes, it was fairly typical for the Yokohama. NOTE: I made a conscious decision to keep the tire pressures as a constant. Yes, you can adjust the handling with pressures, and with testing, you may find some speed by going up, but to me it seemed a waste to band aid an ill handling or unbalanced car with something that will change throughout a few laps. Given that, we ended up with HOT pressures at 26 to 29 after 4 to 9 lap stints. All the sessions were similar. The session was definitely a handful. The car was more sluggish on the straight and wouldn't rev over 4500 even with a tow so the largest difference seemed to be in a straight line (ES – Sebring data agrees, rolling resistance, which is compounded by camber is the single greatest difference). There was also a noticeable tire squeal as the tire slid. The front tires rolled over and the rears kind of slid until they found grip. The bias ply tire makes it easy to feel the entire range of a drift; compared to the radial gripping the abruptly letting go. You will be able to stay in it with the Goodyear and drive it out, but this setup isn't very comfortable and seemed awfully tough on the tire according to temps and pressures, although no wear was evident.

SESSION 3

For session 3 we went from 3.75 deg to 2.5 deg front camber, and 3.25 deg to 2.5 deg rear. We kept all else the same but planned on trying to stiffen the front bar during the session. That change really helped the feeling of the tire rolling over and we made a note to go even more in that direction. We found tire temps became more consistent across the board. The balance of the car was much better and comments were made that the car looked great through the technical corners by other drivers. Lap times were slower than the baseline Yokohama times, but I was able to run in the pack and make several passes under braking. Other than the noticeable lack of straight line speed (much of that compounded by a tired motor) I felt the car was capable of running in the top 12 of the field for sure.

SESSION 4

Our final session was spent once again trying 2 changes. We went even further with removing camber and went stiffer on the rear bar and the front rebound as well. The car was even more responsive and air footed while still allowing you to really toss the car into the corner. It was fun to drive. We pitted after 4 laps and went back out on a sticker set of tires. I immediately got on it hard and managed to get 4 more laps. The car felt the same dynamically, though I think the first lap the smaller tire circumference change the gearing until the tires grew. The lap times were pretty much identical and the fastest laps were both lap 4. I think, however, you can continue to go quicker the longer the run as the car just felt as if it was coming in at that point on both used and sticker tires. For short 4 lap stints, you might be able to go up in pressures.

FINAL NOTES



The car still had the mid corner understeer, so it was my thought to bump up rear rebound even more, so take note of that even though that is not reflected in the final setup. ALSO, a point of interest is we had been running NEGATIVE rake by .25" as the test was over before discussing the size difference between the two tire brands. Readjusting rake to positive .25" might be just the fix I was looking for; although I would still tend to go up 2 to 3 clicks in rear rebound also.

Our final setup should be a good start point, factoring in the rake adjustment and possible rear rebound, so don't leave that stone unturned.

Front camber. 2.5 deg

Front caster. Pos 3.75 deg

Rear camber. 1.75 deg

Rear caster. -1 deg

Front toe. -1/32" (see suggestion of toe in from Goodyear) Front bar. 3/4 stiff Rear bar. 1/2 stiff. Front rebound. 2 clicks from full stiff. Rear rebound 8 clicks from full stiff. Hot pressures. F. 27 to 28, R. 28 to 29

We didn't check rollout so keep in mind to check them from tire to tire as bias plys might vary slightly.

Hope this is a good start.

Regards,
Marc Miller
Professional Race Driver - Instructor
Brand Manager - MRP Motorsport

ES- Next I wanted to share a note from Chris Johenning of Goodyear:

I am aware that you will be publishing some set ups for the new Goodyear SRF tire. I have compiled some of our observations and recommendations which you may care to pass on to your SRF drivers and teams.

Pressures: A wide range of acceptable pressures were observed in testing. Recommendation 22-26 psi cold and 26-36 Hot were all tested successfully. (ES- it is likely that with too much camber the high pressures help to reduce the high level of scrub / rolling resistance and aid with the severe tire deflection that is being forced on a tire designed to run with little camber).

Wet Pressures: 2 psi cold above dry pressures

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Camber: Many cars are running radial camber settings, often over 3.5 degrees. The bias tires will be less sensitive to changes in camber, relative to the current radial. Teams should evaluate tires at current camber settings, but it is expected they will achieve longer tire life and no performance loss by reducing camber settings. Recommendation range -1.0 to -3.5 degrees.

Toe Settings: We have observed most cars running very minimal toe settings, often 0 to 1/32nd on the current radial. The bias tire will tend to want more toe for stability. Recommendation 1/16 to 1/8 inch per position. (ES – History tells us that this will promote the “sitting duck” syndrome on the straights; however I would agree that the tire likely wants this setting).

Tire Temps: We expect the SRF tire to work very well between 160 and 200 deg F. At temperatures above 220 deg F, we would recommend teams used heat cycled (scuffed) tires. While tires do not need to be scrubbed, tires may achieve a longer life by racing scrubbed sets. (ES – remember there is no advantage to running a sticker set hard, but there could very well be a disadvantage in terms of the longevity and consistency if you abuse the tires the first heat cycle).

If I can answer any questions or assist with any clarifications, please do not hesitate to contact me

(ES – second note from Chris, given as evidence that we do not need a wet tire rule)

You may have received this data, but here are my notes on the wet/dry performance test completed with Motion Dynamics.

D2525 Dry Tire New Lap Times (11:15 AM, 78°F Air temp/88°F Track Temp)

1:41.06
39.67
39.61
40.51
39.4
39.9
41.23
39.04

D2524 Wet Carved New Tire (1:45pm, 82°F Air, 87°F track temp)

1:41.71
39.78
40.44
in
out



43.37

44.12

Driver (Derek) comments were the car was difficult to drive, 1 spin. Very minor grip advantage on out lap, but no advantage there by the 1st timed lap. Tire was not preferred. Note that there were some straight line tracking issues that were believed to be caused by the low toe settings of 0.0 in the front.

The team was convinced there was no advantage, but the lap times were not terrible. This confirmed our previous experience with this wet compound.

Chris Johenning
Lead Engineer, Goodyear Racing

Again, this is not a cook book for making a SRF work on Goodyear tires. However, others are promising to share information and I think we are off to a good start.

Sincerely,

Erik