



TB 07-2019

Memo: July 5-7, 2019 SCCA SRF Bump Rubber test

From: Mike Davies, Technical Director

I entered High Plains Raceway open test day before the Major event 7-5-19.

The open lapping day was lightly attended so it ran fast / slow grouping all day. (SRF3 was in the fast group) 8 - 25 min sessions.

I purposely set up the car near minimum ride height, I don't typically like the feel of the car at minimum ride height...but for the purpose of the bump rubber test I wanted the shortest legal gap between the bump rubber and the shock body.

My ride height on new tires was 2.900" front & 3.300" rear and when I checked after the event in the shop on 5 session old the tires, I was about 2.750" & 3.180".

The test day started with no bump rubbers 2 sessions to get used to the low ride height, the next 2 sessions were the same, next 2 / full Penske's, next 2 / full short SCCA Spec bump rubbers...temp change was the largest factor in the lap time difference than the bump rubbers...73 F morning and 88 F afternoon...I left the car alone after the last test session on Friday...best lap in each session was about 1:58.4 +/- 2 or 3 tenths. I was also doing throttle by wire mapping.

Saturday morning, we were the first group, 8 am the only thing that was different was a set of sticker tires and it was about 68/70 F broken clouds...near perfect. I ran a total of 7 laps, 4 1:56.7 to 1:56.9 laps in a row...just about 1 second below the lap record.

I swapped the tire's left to right to run the first Q session, now about 78 F and sunny. ran 3 1:57's in a row and the best lap of 1:57.5 was on the pole by 1.5 seconds.

No changes for the afternoon race, was involved a lap 1 turn 2 bump and parked the car.

For Sunday I switched back to the full-length Penske's on the front only, except for fixing the right rear corner, car was the same as Friday and Saturdays set up.

Sun Q was broken clouds and about 82 F I ran a best lap of 1:58.0 and in the race again passing clouds and about 85 F I ran a best lap of 1:57.9 close to the track record.

I always ran alone, no draft, I led every lap of race 2.



I ran the car as low as I could legally, I used the same set of tires on the test day and started the event on a set of stickers. I never made one change to the set up on the car whole time other than changing the bump rubbers and fixing the bent right rear upright.

My times were at and below the lap record and I was purposely driving over most apex's curbs.

High Plains Raceway is not a very rough track, the curbs are 6 to 8" tall, about 1.5 to 2 feet wide...not super aggressive curbs...but not flat rumbles either.

If using the curbs, inside of the car is a couple inches of the ground at most apex's....

Here are some general spec's for the bump rubbers from our Intercomp spring rate checker these numbers are not absolute figure's, but relative to one another as tested.

Also the motion ratio of rockers is .84 to 1 in general, I'm sure this varies car to car a very small amount based on the chassis and caster/camber setting...but in general that is about what it is. 1" of wheel travel = .84" of shock travel.

On my car at the near minimum ride height, the short SCCA Spec Bump rubber free gap was about 1.170" front and 1.620" rear this will also vary a little bit based on the chassis, rockers and tires on the car.



The first number is the amount of compression, the second is the rate in pounds...this is very generalized.



SCCA long Prototype 2.95"

.25" 55

.5" 85

.75" 114

1.0 240

Penske Full length 2.4"

.25" 34

.5" 57

.75" 81

1.0" 125

Koni full length 2.18"

.25" 42

.5" 72

.75 95

1.0 132

Production SCCA Spec bump rubber 2.0"

.25" 53

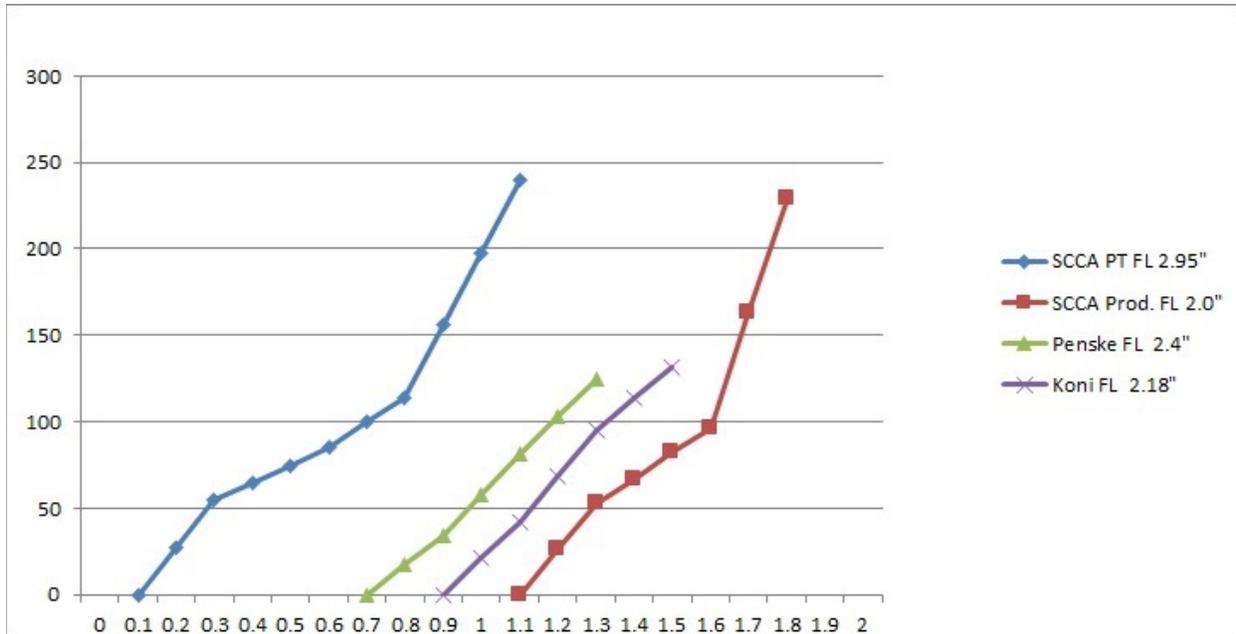
.5" 96

.75" 229

1.0 N/A the way the spring cups are made I can't compress it an inch



Below is a graph of how the bump rubbers compare to each other installed on an SRF shock, the graph is very basic...For example after contact is made on the SCCA long prototype, .750" of travel later...the full length Penske is starting to compress.



In my opinion, the bump rubber rule does not need to be adjusted for any reason. The new bump rubbers are not overly aggressive and if you race on a track that has very aggressive curbs and or is very rough...you have the option to remove the bump rubbers.