

NUMBER:	MA 21-05
DATE:	November 04, 2021
FROM:	Club Racing Board
TO:	Spec Miata Participants
SUBJECT:	2021 Indy Runoffs SM Dyno Data

To All Spec Miata Participants,

The Club Racing Board held a dyno session at the 2021 Indy Runoffs consisting of three top NB1's, two top NB2's and one top NA8. Attached below are the results from that session.

For additional details, contact the tech department at SCCA.

800-770-2055

tech@scca.com

Thank you,
Club Racing Board

Revised: November 4, 2021

Sports Car Club of America, Inc. | PO Box 19400 | Topeka, KS 66619

2021

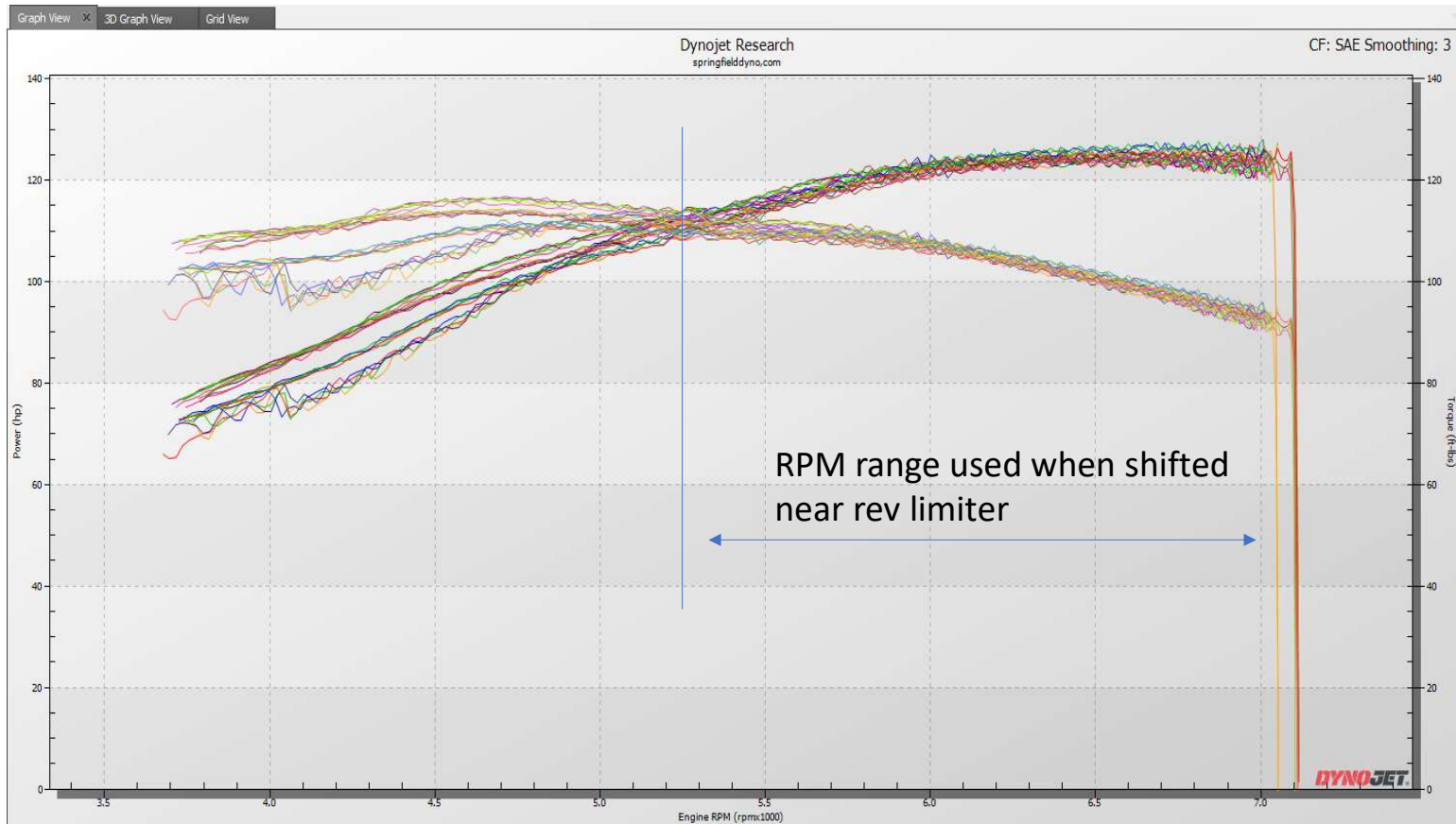


2021 SM Runoffs Dyno Data overview

- Sam Henry - CRB

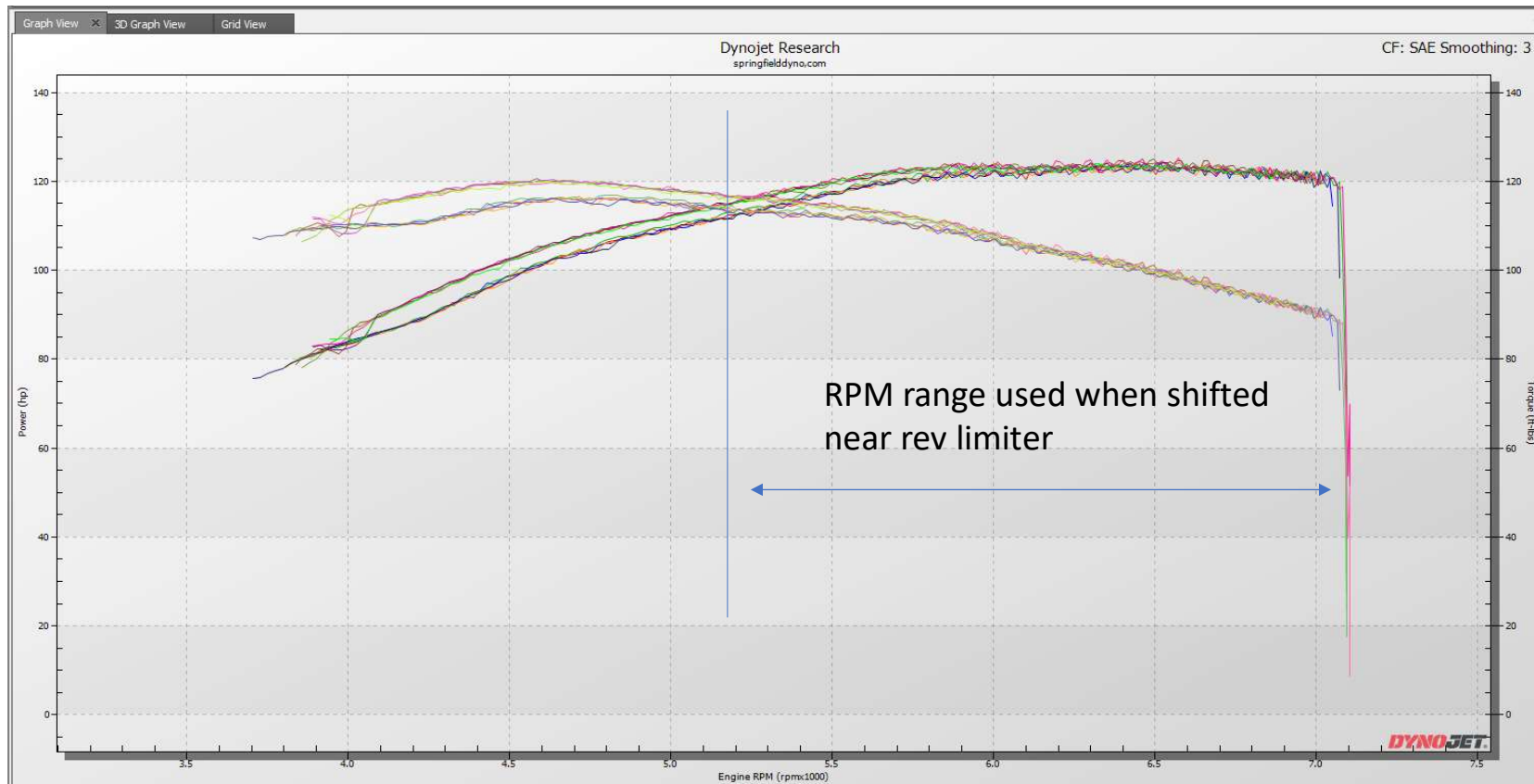


NA8 & NB1 four cars, best 5 pulls for each



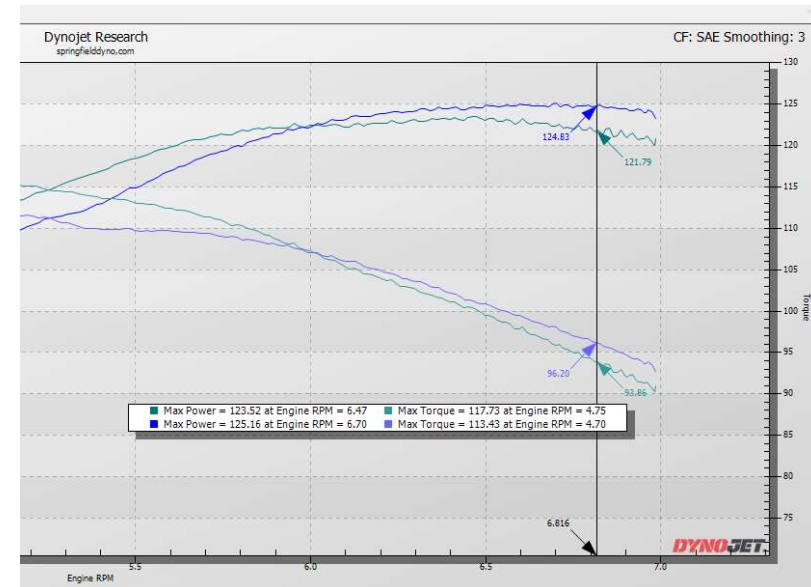
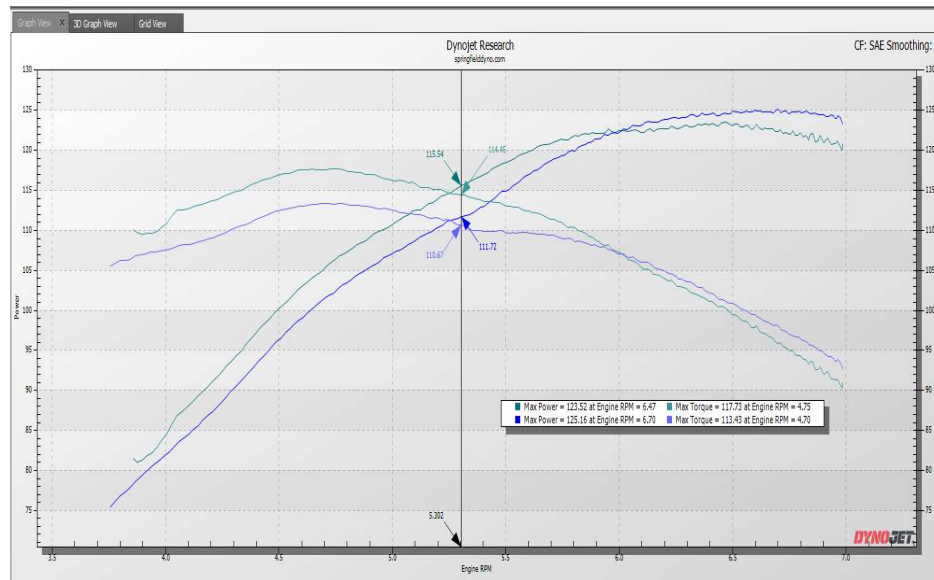


NB 2 (VVT) two cars, best 5 pulls for each





Mathematical average NB1 vs. NB2 (vvt) based on best 5 runs of cars tested



Notes:

Curves generated using dynojet's run averaging feature in WP8 software

Vertical line with leader arrows indicate approximate RPM resulting from a shift example 3 to 4 (car would likely stay to the right of the line on straights and similar). HP and torque values are indicated at the leader arrows. Break out chart to right is to scale difference at high rpm.

Green = VVT, and Blue = NB1, NA8 not included due to only one data point.



Dyno work instruction and details

Other Info:

The Dyno was a Dynojet model 224 with latest software installed in good working condition with trained crew and supervision.

Cars were chosen after early Qual session based on lap times. Cars were impounded after Q3 and escorted straight to dyno with no changes.

CRB and dyno operated the cars and/or dyno.

RPM calibration based on speed, same ratio used for all cars.

All teams selected provided 100% cooperation and support. Thanks!

Spec Miata BOP Dyno Test Procedure:

To achieve measurements that are as consistent as possible, please follow the testing procedure described below. Call 417-880-0916 or text with any questions.

Car Year:	
Car Number:	
Comments:	

- 1) Position and strap down the car
 - a. Position car with rear wheels on drum at top dead center of the drum and centered left to right.
 - b. The front of the car also needs to be "centered" left to right (so that the car is pointed straight ahead).
 - c. Attach straps to factory tow hook positions. If one of the factory tow hooks has been removed and not replaced, then use an axle strap around the rear subframe brace or the front lower control arm or front wheels. Don't cross straps, run front to back with a slight angle. Snug straps, but don't tighten yet. Make sure the exhaust stream will not melt straps or similar. Reposition as required.
 - d. With car in Neutral, and dyno brake "OFF", roll the drum by foot so the rear tire is going in the correct direction forward. Do this for approximately 10 revolutions and "feel" for any excessive drag. Correct any excessive drag or make a note if unable to correct. Bring drum to a stop, and fully tighten all straps. Use the same strap tension for each vehicle.
- 2) Miscellaneous Setup
 - a. Set tire pressure on **all four** tires to 28 PSI.
 - b. Use Optical RPM sensor, or inductive pick up to get an accurate RPM signal. If tire speed calibration is used, use the same calibration for all cars, do not recalibrate for each car.
 - c. If Dyno AFR is available, install AFR sniffer at tailpipe.
 - d. Place hood in full up position.
 - e. Place fan 1-2 inches from radiator opening.
 - f. Make sure the e-brake is not engaged and make sure none of the abort parameters (at the end of this Work Instruction) are being produced.

- 3) Run Procedure
 - a. On dyno computer, create a folder for each car tested. Name the folder so the vehicle is identified by driver name and car number. After testing, email all files to the email address provided. They will be randomly serialized for the BOP team. If there are too many files to email, a cloud drive info will be provided.
 - b. Bring car up to temperature if needed by "driving on the dyno".
 - c. Make 1 pull from 3600 to redline using 4th gear. Touch the rev limiter on the first full pull and for all following pulls, lift just before the rev limiter (50 – 100 rpms). Use dyno brake to slow car back to 3700-3800 rpm and make 2 more pulls, totaling 3 pulls. Do not slow the car enough to require using lower gears. You should be able to stay in 4th gear the entire time.
 - d. Put car in neutral and allow to idle for 45 seconds. While stopping the drum after the 4th pull.
 - e. Turn car off for 60 seconds.
 - f. Start car and repeat steps c to e. Repeat this process until you have 12 runs total (4 sets of 3 pulls).
 - g. After the final run, make another dyno run from 95 – 105 mph, keep recording and shift the car in neutral. Do not hit dyno brake, or car brake. Keep the car idling. Allow the car to "coast" down to 98 mph and then stop recording. The purpose of this run is to measure the coast down power. It gives an indication of driveline drag or alignment drag.
- 4) Abort the dyno pulls for any of the following reasons:
 - a. Unable to control water temp
 - b. Car is losing noticeable power with each run.
 - c. Car is making less than 110 ~~rxhp~~ ^{whp}
 - d. Any unusual mechanical noises or other logical reason to abort the runs.
- 5) Provide a print out or similar to the entrant of the car of the best two runs.
- 6) Record comments/notes of any items you feel are relevant. Save the run files to a jump d

Best Reg
Call 417-

Personal info covered

The End

2021

