



MOTORSPORT SOUTH AFRICA NPC

Reg. No 1995/005605/08

www.motorsport.co.za

2nd Floor, Meersig 1, Cnr. Upper Lake Lane & Constantia Boulevard, Constantia Kloof, Roodepoort
e-mail: msa@motorsport.co.za Telephone (011) 675 2220

MSA CROSS COUNTRY CAR CIRCULAR 1 OF 2021

Please refer to: CROSS COUNTRY CAR RACING PART 2 CLASSIFICATION AND VEHICLE SPECIFICATIONS
Art 3.2.6 FIA Classes.

Add:

3.2.6.1 SACCS Turbo Strategy

The purpose of the strategy is to balance the performance of turbo petrol engines to the FIA specified 5 liter NA (Normally Aspirated) Ford engine power curve. This will only be applicable in the SACCS National Championship for cars in the FIA T1 class with supercharged (turbocharged) petrol engines.

i. The strategy will be based on the FIA regulations in App J Art 285, but simplified. The SACCS required sensors and harness may be to FIA regulation. Should teams compete in FIA events, only the additional ECU's, loggers, sensors and harnesses will be required.

ii. Method to balance performance NA versus Turbo:

The turbo boost curve will be generated on a specified dyno to produce a power curve not exceeding the FIA specified NA power curve. See appendix A. The boost curve will be adapted at all competing altitudes whilst driving by using the FIA specified control strategy as a guideline. *T1 Petrol supercharged engines - Clarification of the current technical regulations 01/10/2020.*

The boost control strategy will be based on the following parameters:

- Manifold Absolute Pressure (MAP) as measured in the inlet manifold.
- Barometric Absolute Pressure (BAP) = atmospheric air pressure.
- rpm = engine speed.
- P_{ref} = BAP at sea level (1010 mBar).
- $P_{ambient}$ = BAP at the car racing.
- $PR_{boost/Pref}$ = Pressure Ratio = MAP/P_{ref} through the full range of engine speeds to give the power to match the NA base power curve. App B:
Pboost ratio Max.
- $MAP_{boost\ curve}$ = $(PR_{boost@1010mB} @ rpm) * P_{ambient}$
= MAP values at the full range of engine speeds to give the power as per the base power curve, App A. Not to be exceeded.

3.2.6.2 SACCS Data Logging Requirements:

i. Motec ECU model M142 including data logger with separate password protected memory accessible to SACCS Technical Delegates only.

MOTORSPORT SOUTH AFRICA IS THE ONLY RECOGNISED MOTORSPORT FEDERATION IN SOUTH AFRICA



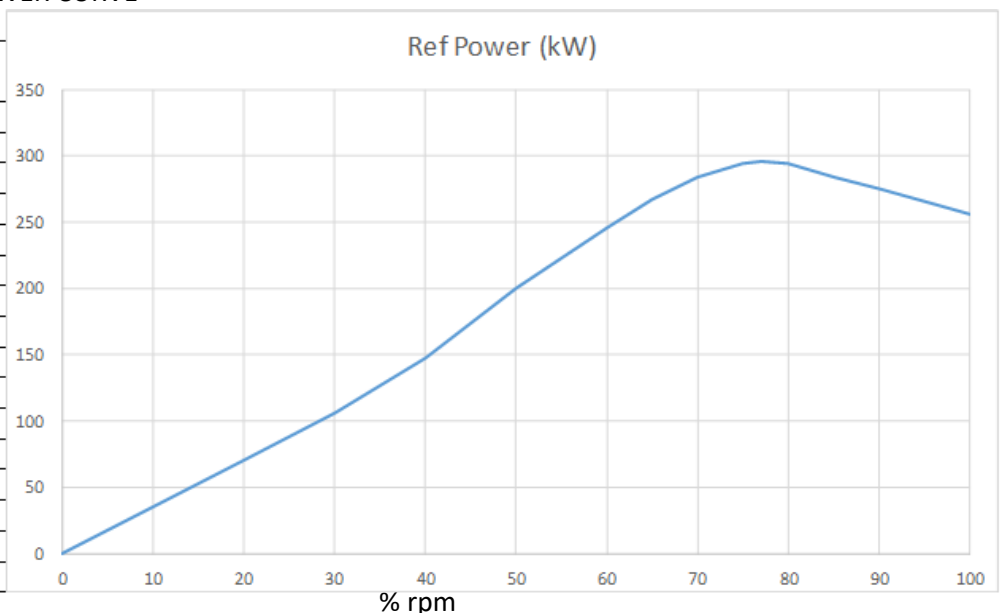
Directors: A. Roux (Chairman), A. Scholtz (Chief Executive Officer), R. Beekun (Financial), Mrs. D Abrahams, A. Harri, M. Hashe, FC. Kraamwinkel, Dr G. Mills, C. Oates, R. Schilling, Ms M. Spurr, S. Themba

- ii. The required inputs for data logging (refer also App J art 285):
 - a. Manifold Absolute Pressure. 20Hz
 - b. Barometric Absolute Pressure. 2Hz
 - c. GPS altitude. 1Hz
 - d. GPS speed. 1Hz
 - e. Engine rpm. 20Hz
 - f. Pedal position. 5Hz
 - g. Ignition timing. 20Hz
 - h. Lambda. 5Hz
 - i. VVT. 10Hz
 - j. Manifold air temperature. 1Hz
 - k. Air temperature at air cleaner inlet. 1Hz
- iii. Harnesses must be installed clearly visible and accessible from sensor to ECU and data logger for inspection.
- iv. The above data must be logged when the car is running from start control to end control, and must be made available to the SACCS Technical Delegates whenever requested, including any additional ECU data.
- v. Overboost will be recorded when:
 - throttle is $\geq 10\%$ open;
 - AND
 - r.p.m. ≥ 2000
 - AND
 - road speed ≥ 10 km/h constant or increasing;
 - boost is recorded \geq boost limit plus 15 mbar for more than 0,5 seconds.
 - Lambda minimum lower (no richer than) than specified.
- vi. Penalties: 20 seconds per overboost as in 4.5, or lambda exceeded for more than 1 second.
The C.O.C. may increase the penalty for repeated offences.
- vii. The NWM Ford will use the Pro-Drive **FORD 3.5 GTDI V6 ECOBOOST** boost curve when competing in SACCS events.
The balance of performance may be adjusted by the Technical Delegates if required.
See Appendix B.
Other competitors wishing to compete with turbo engines in the FIA class will have to construct a power curve on a specified dyno.
- viii. The NWM Ford will use the Tial Sport QRJ 38 mm mechanical blow off valve.

App A: BASE FIA POWER CURVE

At 20°C and 1010 mbar

Rpm (% of max rpm)	Ref Power (kW)
0	0
10	35
20	70
30	106
40	148
50	200
60	246
65	267
70	284
75	294
77	296
80	294
85	284
90	275
95	266
100	256



App B:

ANNEXE VIII – LISTE DES MOTEURS ESSENCE SURALIMENTÉS T1

APPENDIX VIII – T1 SUPERCHARGED

PETROL ENGINE LIST

ANNEXE VIII / APPENDIX VIII**T1 SUPERCHARGED PETROL ENGINE LIST**

The procedure for adding an engine to this list, and the related forms, are available on the FIA website dedicated to cross-country regulations under "Related Documents":

Date	T/C petrol engine number	Tuner	Base engine
22/12/2020	2020-001	PRODRIVE	FORD 3.5 GTDI V6 ECOBOOST

Engine rpm	2500	3000	3500	4000	4500	5000	5500	6000	6500
Pboost ratio Max (-) at 1010 mbar	1,738	1,811	1,831	1,84	1,847	1,815	1,657	1,516	1,404

Declared minimum Lambda	0,93-t.b.a.
-------------------------	-------------



VIC MAHARAJ
SPORTING SERVICES MANAGER

18 March 2021

162477/157