VTB 4 Checks
VTB checks on RCE Limited models

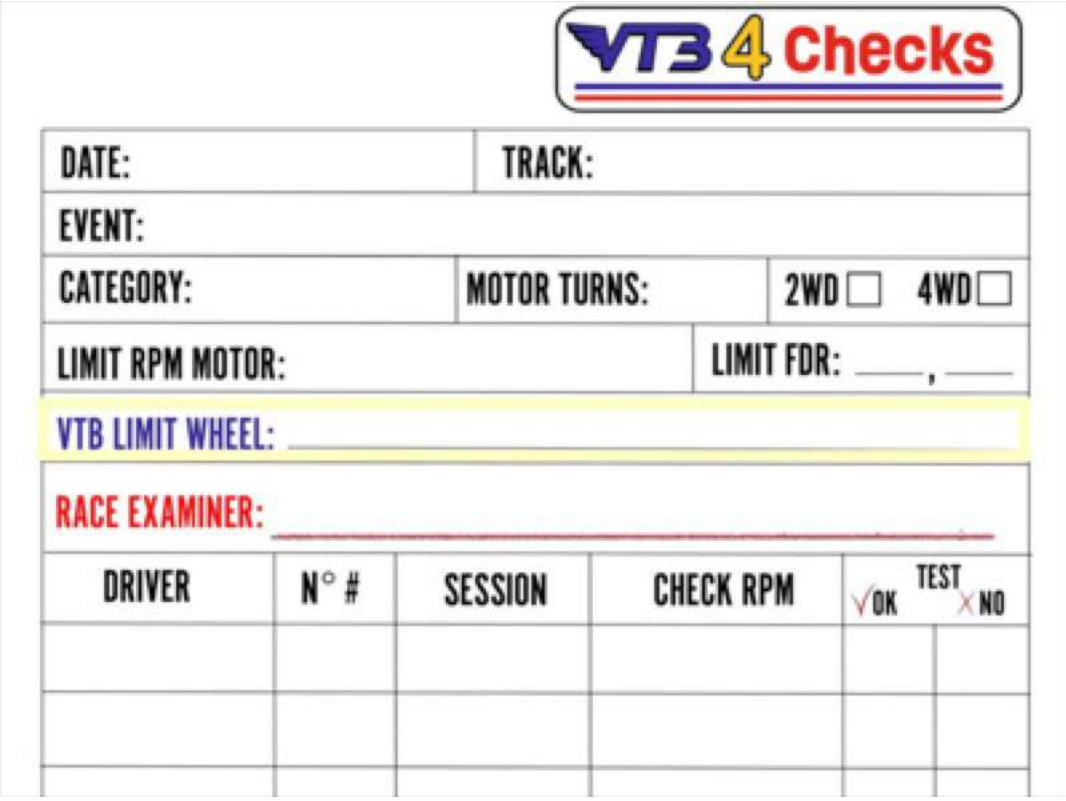
the “VTB 4 checks” is a value generator available to all enthusiasts for rapid on-track checks of electric RC models subject to regulatory limits, limits which consist of:
“n” engine rpm and “n” FDR value.

It ‘s sufficient to insert these 2 values in the relevant fields of the generator and indicate (with a check mark) the type of traction, to obtain the "max limit value of wheel rpm of the model" including all production, mechanical and electronic tolerances , as well as all the adjustment possibilities that can lawfully be carried out by the ESC, acquired to date by the VTB Server; the result will be the limit value within which all verified models must necessarily fall.

Note: this calculation operation can be (and is recommended) done before the race, allowing us to have an objective and updated reference value for the control measurements on the track during the event (the measurement being verified takes approximately 1 minute to model, and there is no need to dismantle anything).

Here are some indications for a quick and practical check on the track (using a laser speedometer) with an example of category 4 WD with a 17.5T engine limited to 17500 rpm and a minimum FDR ratio of 5.50

1st step - download the PDF “VTB for checks sheet” on the VTB website in the Download > SetUp section



VTB 4 Checks

DATE:	TRACK:				
EVENT:					
CATEGORY:	MOTOR TURNS:	2WD ☐ 4WD ☐			
LIMIT RPM MOTOR:		LIMIT FDR: ____, ____			
VTB LIMIT WHEEL:					
RACE EXAMINER:					
DRIVER	N° #	SESSION	CHECK RPM	TEST √OK	TEST X NO

2nd step - enter your VTB Personal Area, access the “VTB Calculator” section, scroll to the “VTB 4 Check” panel; here we can establish the wheel rpm limit value we need.

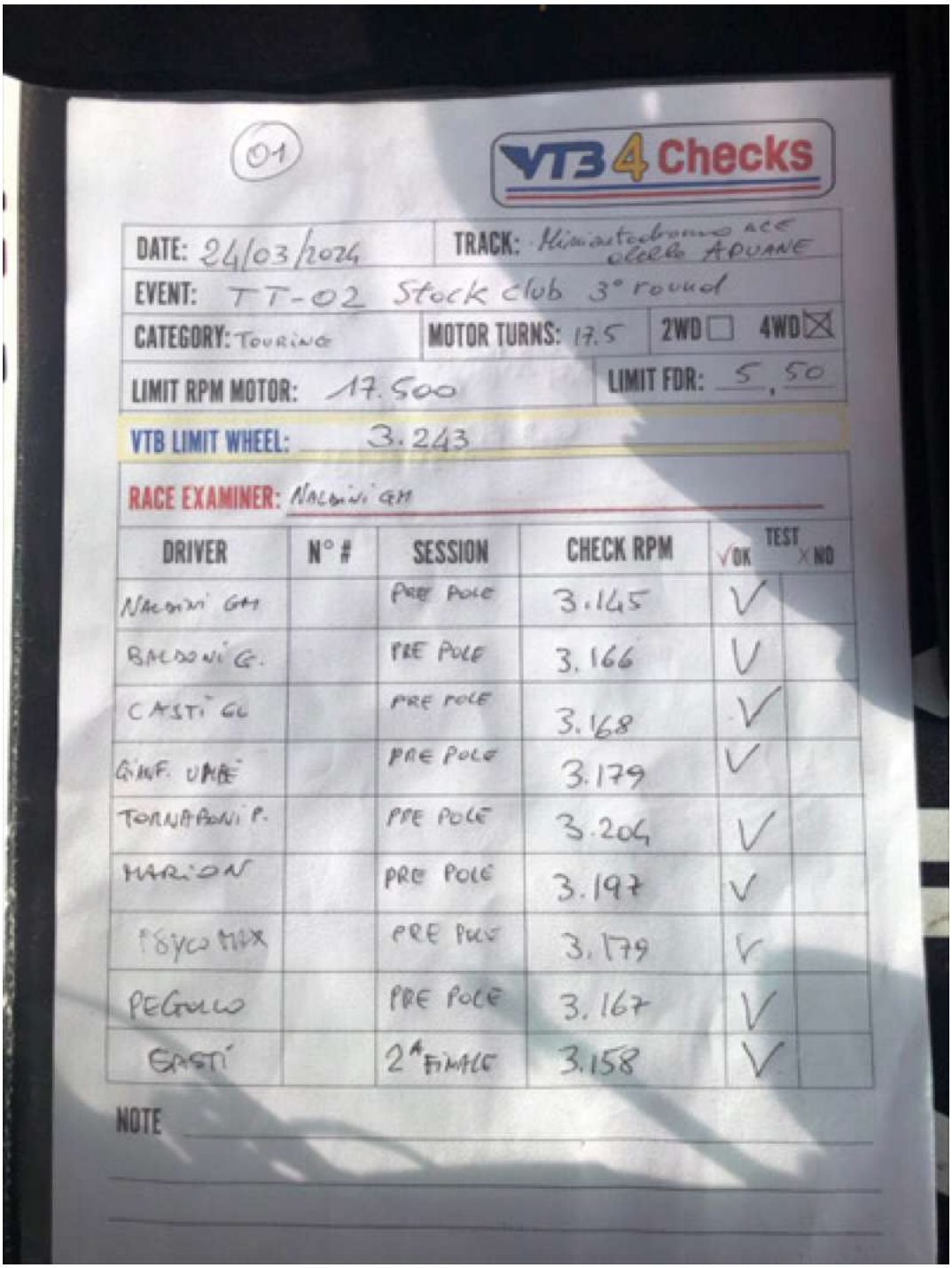
3rd step - Enter the main data required: type of traction (4WD), the max rpm value set in the regulator (17500) and the FDR value equal to that of the regulatory minimum (5.50).

By pressing the “Calculate” button, we obtain the wheel rpm limit value we need.

Write the value on the “VTB checks” sheet in the appropriate box:

VTB LIMIT WHEEL: 3243

then complete all the other fields relating to the event so that it can be used by the Race Direction for recording all the day's checks and officially displayed to all competitors.



01

VTB 4 Checks

DATE: 24/03/2024 TRACK: Mini autodromo ACE circuito APUANE

EVENT: TT-02 Stock club 3° round

CATEGORY: Touring MOTOR TURNS: 17.5 2WD ☐ 4WD ☒

LIMIT RPM MOTOR: 17.500 LIMIT FDR: 5,50

VTB LIMIT WHEEL: 3.243

RACE EXAMINER: Nalonini GM

DRIVER	N° #	SESSION	CHECK RPM	TEST √OK	TEST X NO
Nalonini GM		Pre Pole	3.145	√	
Baldoni G.		Pre Pole	3.166	√	
Casti GL		Pre Pole	3.168	√	
Gianf. Uhe		Pre Pole	3.179	√	
Tornabuoni P.		Pre Pole	3.204	√	
Marion		Pre Pole	3.197	√	
Psycho Mix		Pre Pole	3.179	√	
Pegollo		Pre Pole	3.167	√	
Casti		2ª Finale	3.158	√	

NOTE

4th step - during the race check it is sufficient to apply a piece of reflective sticker to a driving wheel (recommended for practicality, the rubber elastic with the reflective sticker already positioned in it, fitting it on the circumference of the tyre). To boot. the measurement by keeping it active while we progressively bring the engine to maximum rpm and keep it at full rpm for 2 or 3 seconds, then release the gas and read the measurement.
The maximum reading value must be lower than the limit generated by the VTB.

==========

Further information:
If this is not the case, and therefore we obtain a wheel rpm value higher than the VTB limit, there could be several reasons for this discrepancy:

1. **Laser Speedometer Inaccuracy**: The laser speedometer may not be completely accurate or may not be calibrated properly. It is possible that it provides a slightly higher or lower reading than the actual wheel speed [check correct operation on other models].

2. **Measurement Error**: There may be errors in performing the bench test or using the laser speedometer that have resulted in inaccurate measurement of wheel speed. [repeat measurement]

6. **Calculation Errors**: There may be an “error” in wheel speed calculations based on engine RPM limiter and/or final gear ratio.
[In this case it is mandatory for the Race Direction to proceed with a more in-depth check in search of the "error" most likely limited to these 2 steps:
1st step - check that the ESC “blink code” is equivalent to the required rpm limit.
2nd step - if the ESC is regular, we proceed by counting the number of teeth of the crown and pinion for the calculation of the PDR (z Crown: z Pinion), and the number of teeth of the differential ring and of the pulley or cardan for the calculation of the DTR (z Ring nut : z Pulley or cardan shaft); proceed with the calculation PDR
[if all the controls were compliant, then we would find ourselves faced with 0.001%, i.e. the best performing compliant model in the world].