

# **FORMULA 1000 TECHNICAL REGULATIONS 2007**

## **INTRODUCTION**

The following Technical Regulations are set out in accordance with the MSA specified format and it should be clearly understood that if the following text does not clearly specify that “you can do it”, you should work on the principle that you cannot

IT IS YOUR RESPONSIBILITY TO ENSURE THAT YOUR CAR IS LEGAL IN ALL RESPECTS AT ALL TIMES.

Failure to accept these rules will invalidate your Formula 1000 challenge status. Remember, your fellow competitors will also “police” your eligibility.

The “committee” referred to in these regulations are the elected members of the committee of the Formula 1000 Rally Club for 2007 or the technical team thereof.

## **GENERAL DESCRIPTION.**

The challenges aim to encourage competition for cars of less than 1000cc engine capacity, that handle and stop well, are reliable, cheap to run and can be used on other events with minimal changes. It should be noted that these regulations are for stage rally cars and require an MSA competition car logbook. Adherence to these regulations may invalidate your car for other motorsport disciplines. E.g. Removal of inner panels, i.e. headlining, door panels etc, though accepted here is not accepted for road rallies.

A prime objective of these regulations is to facilitate equality of performance between different types of cars. The organisers reserve the right to adjust the regulations to equalize power to weight ratios should any one type of car become dominant.

Exceptionally the committee reserve the right to change any of these rules, at any time in order to facilitate safe and fair competition, publicising the changes by email or post to all registered competitors. Details will also be posted on Formula1000.co.uk A time of 14 days will be allowed from initial notification to implementation. There will be no lenience in this time interval.

The committee reserve the right to move competitors from any class to another, even if their car fully complies with the original class.

## **CLASSES.**

Class A: For cars with a single choke carburettor or single point fuel injection. Limited modifications are allowed as detailed later. As a guide, a maximum power output of 50 bhp is expected.

Class B: For cars modified beyond class A or that have fitted as standard, differences such as multivalve heads, twin-cams, multi point injection, variable valve timing etc. This will be split into sub-classes B1 and B2.

B1 is for cars, such as Toyota Yaris, Perodua Kelisa, Nissan Micra, which have high standard specification, i.e. multi-valve, twin-cam, multi-point injection typically giving higher power outputs than class A cars.

B2 is for class A cars with additional “allowable” (by the committee) modifications to match the performance of B1 cars. N.B. These additional allowable modifications must be ratified in writing with use of diagrams/photos, by the committee before points will be awarded. A copy of this written document MUST be produced at each event for inspection by the eligibility scrutineer. A second copy of this document MUST be lodged with the committee.

## **TECHNICAL REGULATIONS IN DETAIL.**

The following text is in addition to sections E12 and K37>37.9.11. of the current MSA Competition Yearbook (BLUE BOOK)

The committee may require any engine or transmission part or parts to be stripped for inspection. Sealing may be carried out with a view to stripping at a later date. Refusal to allow this will result in all challenge

points up to and including the date of the request being forfeited. The cost of any stripping will be borne by the competitor.

#### ENGINES. (For all classes)

1.1 Engines must be less than 1000cc capacity. There is no rebore allowance. If your engine is worn then a breaker's yard replacement engine of the same type, of the correct capacity and of the same related manufacturer, e.g. Peugeot/Citroen, Renault/DAF/Volvo, VW/Seat, is allowed. If such a replacement is not available, then reboring for the purposes of re-lining the engine to the correct capacity is allowed. Reboring an engine and then short-stroking by swapping or modifying the crank in any way so as to achieve the correct engine capacity is not allowed. Motor cycle engines are specifically not allowed, even if the manufacturer supplied such an engine as standard.

1.2 It is permitted to transplant a sub-1000cc engine into an originally higher specification car. E.g. Nova GTE with 993 cc Vauxhall engine.

1.3 Diesel engines are not allowed

1.4 Rotary (Wankel) engines are not allowed

1.5 Forced induction is not allowed

1.6 Air filters must be fitted, open "ram pipes" are not allowed.

1.7 4 Wheel Drive transmission is permitted if fitted as standard e.g. Fiat Panda 4x4

#### Class A

2.1 Single choke carburettor or single-point injection only, as originally fitted to the sub-1000cc engine.

2.2 Air filters and trunking are free, but must be fitted. These may be modified but all incoming air must go through the filter, i.e. no by-pass systems.

2.3 Cold air boxes may be fitted.

2.4 Carburettors may be set up to optimise jettings.

2.5 Fuel pumps are free

2.6 Fuel pressure regulators may be fitted.

2.7 Inlet and exhaust manifolds must be original and unmodified in any way. They may be sourced from other sub-1000cc models by the same or related manufacturer.

2.8 Exhaust pipes, silencers and their routing are free, with reference to E 12.16.6. Exhaust by-pass systems are not allowed.

2.9 It is permitted to fit a sub-1000cc engine into a car of the same make, but all other performance related engine parts must be from that sub-1000cc engine. E.g. When fitting a 993cc Vauxhall engine into a 1300cc Opel Corsa it is not permitted to use the 1300cc carburettor/fuel injection.

2.10 Modifications of any kind to engine blocks, any internal engine parts or rotating masses are not allowed except as detailed in rule 2.11. Non original Steel cranks or bottom ends are not allowed. Modifications involving balancing and/or lightening are not allowed.

2.11 Cylinder head skimming up to 25 thousandths of an inch is permitted.

2.12 Gearboxes must be original, with original ratios and gears and from a sub 1000cc model: non original straight cut gears may not be used. (see later section)

2.13 Oil coolers may be fitted.

2.14 Radiators may be modified and increased, in either size or number.

2.15 ECU's must be in standard "tune" and for that particular engine. You may be asked to provide proof of this.

#### Class B1.

As Class A

#### Class B2. (i.e. modified Class A, but with permitted modifications only)

3.1 A single twin-choke carburettor may be fitted to a lightly modified inlet manifold sourced from the original standard car or related model of the same make; this manifold must be retained. This manifold must remain in its entirety 100%. Adapter plates/blocks may be fitted to the original inlet manifold to facilitate carburettor fitting. All carburetors that have simultaneous opening twin chokes (i.e. D.C.O.E; D.H.L.A; I.DE, 36D.C.N.F.) or similar are not allowed within the f1000 championships.

3.2 Exhaust manifold is free.

3.3 Unlimited skimming of cylinder head face is allowed. NO OTHER cylinder head modifications are allowed.

3.4 Only original, standard, sub 1000cc camshafts maybe used.

3.5 All cars are to carry a "B2" logbook , these are to be applied for and details of all modifications are to be listed and presented to the technical team for scrutiny and will need to be signed off as authorised. All modifications must be approved by the technical team in writing before implementation. Application for approval will be of a detailed nature complete with a signed statement and drawing/picture of the modification. The technical team will retain this.

3.6 It is permitted to remove the standard fuel injection system and replace with a single or twin-choke carburettor from another road car. A standard lightly modified original equipment manifold may be used for this modification. We remind you AGAIN this must be approved by the committee in writing as detailed earlier. Aftermarket/performance manifolds are not allowed.

3.7 All internal engine parts must remain as standard other than detailed in rule 3.3

3.8 Transmissions must be original but may be from another family related model or combination of models. AGAIN written approval is required from the committee. Non original straight-cut gears may not be used. (see later section).

3.9 Oil coolers may be fitted.

3.10 Radiators may be modified and increased, either size or number.

## BODYSHELLS

### CLASS A –

- 4.1 The body shell of the car may be freely strengthened including rollage and suspension areas.
- 4.2 Gusset/ Triangulation panels (or similar), plating, seam welding and "weld on" braces are all permitted.
- 4.3 Bolt on strut braces across the suspension turrets are permitted.
- 4.4 Any trim can be removed or replaced e.g. carpets, headlining, dashboard, sound deadening.
- 4.5 Bonnet, doors and tailgate must be of original material i.e. you cannot exchange steel to plastic/ GRP
- 4.6 Additional instruments are permitted as are interior accessories e.g. intercom, trip meter etc.
- 4.7 Underbody guards are permitted
- 4.8 Strengthening of Gearbox and Engine mount fittings permitted
- 4.9 Brake and fuel pipes lines are free and their positioning can be changed. Note 2006 MSA rules regarding fluid lines as detailed in the 2006 competitors yearbook.
- 4.10 Bonnet, boot and door fastenings are free.
- 4.11 All Glass areas MUST remain as glass areas i.e. replacement by any other material than glass is NOT permitted.
- 4.12 Door/ Wing mirrors are free
- 4.13 Lightening of the bodyshell is permitted by removing material (Non structural areas only).  
However, a recommendation is made to exercise caution not to remove strength from any area which could reduce safety if involved in an accident

### CLASS B1 – As class A.

### CLASS B2 –

- 5.1 Free except door materials must remain as original.

## BRAKES

### CLASS A –

- 6.1 Fluids, pads and linings are free.
- 6.2 ABS systems may be disabled or removed
- 6.3 All major mechanical components must be standard for the model entered, or a direct bolt on replacement from another model in the range.
- 6.4 HYDRAULIC HANDBRAKES are not allowed

### CLASS B1 – As Class A

CLASS B2 – Multi – pot alloy callipers are not allowed.

## TRANSMISSIONS + DIFFERENTIAL

### CLASS A –

- 7.1 NO modifications or machining permitted
- 7.2 All parts MUST be to standard showroom specification
- 7.3 Up rated gear linkages are permitted
- 7.4 Replacing Automatic Gearboxes with Manuals are permitted
- 7.5 Limited slip or torque biasing differentials ARE NOT PERMITTED.

### CLASS B1 – As Class A

### CLASS B2 –

- 8.1 Limited slip or torque biasing differentials ARE NOT PERMITTED
- 8.2 Alternative gear ratios, number of gears and replacing of auto's with manuals are permitted provided all parts are sourced from standard production models of the same or related make of vehicle
- 8.3 All replacement parts MUST be from a standard model – NO COMPETITION PARTS PERMITTED
- 8.4 Uprated gear linkages are permitted
- 8.5 All cars running within the B2 class must have an f1000 logbook. It is the competitors responsibility to ensure the correct details are given for the car and also to inform the club of any further relevant modifications that are carried out.

## STEERING

### CLASS A –

- 9.1 Steering racks of higher ratio than standard are not permitted
- 9.2 Power steering may be added or removed
- 9.3 Conversion from right hand drive to left and left to right is permitted.

### CLASS B1 – As Class A

CLASS B2 – As class A and class B1 but alternative steering ratios are permitted

## SUSPENSION

### ALL CLASSES –

- 10.1 Bushes may be changed for similar polymer material.
- 10.2 No all metal rose joints or similar except as in rule 10.7
- 10.3 All mounting points MUST be kept in the same position as standard showroom specification but may be strengthened.

- 10.4 Top mounting hole movement is permitted to optimise caster, camber, tracking angles.
- 10.5 Springs and Dampers are free, Remote reservoir are NOT PERMITTED
- 10.6 Struts may be changed for an up rated version, but MUST be attached to the original fittings.
- 10.7 Heavy duty/ fabricated strut top mounts or similar are permitted. These MUST fit the standard bodyshell location.
- 10.8 Suspension bush material is now free, i.e. powerflex or similar can now be used, but must retain the manufacturers specifications.

## SAFETY EQUIPMENT

1. ALL CARS MUST comply with MSA safety and noise requirements.

## WHEELS

FREE. Competitors are reminded however that wheel/tyre assemblies must not exceed 7 inches in width as per MSA technical regulations.

### TYRES

- Only tyres listed by the challenge organisers are permitted. These will be  
FOR THE FOREST RALLY CHALLENGE  
Dunlop SP85  
FOR THE STAGE RALLY (TARMAC) CHALLENGE  
Falken ZE502  
ZE512  
FK06G  
FK07E  
FK07U  
SN807

These must be used for their designated challenge e.g Dunlop SP85 may only be used for forest challenge events – not for tarmac challenge events.

- Competitors are again reminded that the tyre width MUST be within the limits set in the MSA technical regulations.

## FUEL

ONLY commercially available pump fuel will be permitted.  
Bio ethanol fuel permitted but notification must be given to the technical team.

## LIGHTS

FREE

## DATA LOGGER

- A black box data logger may be fitted to ANY car at ANY time on ANY event for the purpose of assessing power output.
- Cars MUST be made available to be weighed at ANY time during any Formula 1000 challenge rally.

Drivers who refuse to comply with these rules or in the opinion of the committee have excessive readings will forfeit points for that round and any other round the enforcing team consider necessary.

**IF THE REGULATIONS DON'T SAY YOU CAN DO IT, THEN YOU CANT!!!**

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