

GENERAL PRESCRIPTIONS FOR CROSS-COUNTRY VEHICLES
(BASED ON FIA REGULATIONS – APPENDIX J – ARTICLE 282)

Modified Article	Date of application	Date of publication
Article 3	01.01.2019	12.10.2018
Article 3.11	01.01.2019	12.10.2018

ART. 1 GENERAL

1.1 All modifications are forbidden unless expressly authorised by the regulations specific to the group in which the car is entered or by the general prescriptions below or imposed under the chapter "Safety Equipment".
The components of the car must retain their original function.
It is the duty of each competitor to satisfy the Scrutineers and the Stewards of the competition that his automobile complies with these regulations in their entirety at all times during the competition.
The vehicles must respect the national road traffic regulations of the **country/countries** crossed.

1.2 Application of the General Prescriptions

The General Prescriptions must be observed in the event that the specifications of Cross-Country vehicles (Groups T1, T2, T3, T4) do not lay down a more strict prescription or different and mandatory.

1.3 Various modifications

The use of magnesium and titanium alloys is prohibited, other than for the wheel rims or if a component effectively exists on the homologated vehicle.

Titanium is permitted only for line quick release connectors (except on braking circuit).

1.4 Damaged threads can be repaired by screwing on a new thread with the same interior diameter ("helicoil" type)

1.5 "Free" part

"Free" means that the original part, as well as its function(s), may be removed or replaced with a new part, on condition that the new part has no additional function relative to the original part.

1.6 Material

The use of a material which has a specific yield modulus greater than 40 Gpa/g/cm³ is forbidden, with the exception of plugs, exhaust coatings, water pump turbo joints, brake pads, brake calliper piston coatings, rolling elements of bearings (balls, needles, rollers), electronic components and sensors, parts weighing less than 20 g and all coatings with a thickness less than or equal to 10 microns.

The use of a metallic material which has a specific yield modulus greater than 30 Gpa/g/cm³ or of which the maximum specific UTS is greater than :

- 0.24 Mpa/kg/m³ for non iron-based alloys and
- 0.30 Mpa/kg/m³ for iron-based alloys
is forbidden for the making of all the parts that are free or homologated as an Option Variant.

1.7 Water spraying

Any water spraying system is forbidden (except windscreen washer).

ART. 2 DIMENSIONS AND WEIGHT

2.1 Ground clearance

No part of the vehicle must touch the ground when all the tyres on one side are deflated.
This test must be carried out on a flat surface under race conditions (occupants on board).

ART. 3 ENGINE

3.1 All engines into which fuel is injected or in which fuel is burned after an exhaust port are prohibited.

3.2 Supercharging

For supercharged diesel engines of T1 and T2 cars, the nominal cylinder capacity is multiplied by 1.5 and the car must pass into the class corresponding to the fictive volume thus obtained.

The car must be treated in all respects as if its cylinder capacity thus increased were its real capacity.

This is particularly be the case for assigning the car to its cylinder capacity class, its interior dimensions, its minimum number of places, its minimum weight, etc.

3.3 Equivalence formula between reciprocating piston and rotary engines (of the type covered by the NSU Wankel patents)

The equivalent cubic capacity is 1.8 times the volume determined between the maximum and minimum capacities of the combustion chambers

3.4 Equivalence formula between reciprocating piston and turbine engines

The formula is the following :

$$C = \frac{S(3.10 \times R)^{7.63}}{0.09625}$$

S = High - pressure nozzle area - expressed in square centimeters by which is meant the area of the airflow at the exit from the stator blades (or at the exit from the first stage if the stator has several stages).

Measurement is done by taking the area between the fixed blades of the high-pressure turbine first stage.

In cases where the first stage turbine stator blades are adjustable, they must be opened to their greatest extent.

The area of the high-pressure nozzle is thus the product of the height (expressed in cm) by the width (expressed in cm) and by the number of blades.

R = The pressure ratio is the ratio of the compressor of the turbine engine.

It is obtained by multiplying together the value for each stage of the compressor, as indicated hereafter :

Subsonic axial compressor	1.15 per stage
Trans-sonic axial compressor	1.5 per stage
Radial compressor	4.25 per stage

Thus a compressor with one radial and six axial subsonic stages is designated to have a pressure ratio of :
4.25 x 1.15 x 1.15 x 1.15 x 1.15 x 1.15 x 1.15 or 4.25 x (1.15)⁶.

C = Equivalent cubic capacity for reciprocating piston engines in cm³

3.5 Equivalencies between reciprocating piston engines and new types of engines

The **FMSCI/ FIA** reserves the right to make modifications on the basis of comparisons established between classic engines and new types of engines, by giving a two-year notice from the 1st January following the decision taken.

3.6 Exhaust system and silencer

Even when the specific provisions for a group allow the replacement of the original silencer, the vehicles competing in an open road competition must always be equipped with an exhaust silencer complying with the traffic regulations of the country(ies) through which the competition is run.

The exhaust system must not pass through the cockpit.

The exhaust outlet must be horizontal or directed upwards. The orifices of the exhaust pipes must be placed at a height :

For Groups T1, T2 and T3

Of maximum 80 cm

Of minimum of 10 cm from the ground in case of lateral exit.

For Group T4

Not exceeding by more than 300 mm the height of the cabin and/or the load-bearing bodywork.

The exit of the exhaust pipe must be situated within the perimeter of the car and less than 10 cm from this perimeter, and, in case of lateral exit, aft of the vertical plane passing through the centre of the wheelbase. Moreover, adequate protection must be provided in order to prevent heated pipes from causing burns.

The exhaust system must not be provisional. Exhaust gas may only exit at the end of the system.

Parts of the chassis must not be used to evacuate exhaust gases.

3.7 Starting on board the vehicle

Starter with electric or other source of energy on board operable by the driver when seated in the seat.

3.8 Drive-by-wire

Accelerator controls of the "drive-by-wire" type are forbidden in Groups T2 and T4, unless they exist on the homologated vehicles, and are authorised in Group T1.

3.9 Smoke

It is forbidden to produce smoke from the engine, however reasonable emissions are tolerated. Any official of the competition is empowered to judge this.

3.10 Speed limiter

A speed limiter system operated manually from the cockpit is authorised.

The sole function of this system must be to limit the speed of the vehicle when the crew so decides.

The speed threshold used by the system must be lower than the maximum speed specified in the supplementary regulations of the competition for crossing villages.

ART. 4 TRANSMISSION

All cars must be fitted with a gearbox including a reverse gear which must be in working order when the car starts the competition, and be able to be operated by the driver when he is normally seated.

ART. 5 SUSPENSION

Suspension parts made partially or entirely from composite materials are prohibited.

ART. 6 WHEELS AND TYRES

Wheels made partially or entirely from composite materials are prohibited.

With the exception of anti-puncture liquids and gels applied to the internal surface of the tyres, the use of any device allowing a tyre to maintain performance with a pressure equal to or lower than atmospheric pressure is prohibited.

The interior of the tyre (space between the rim and internal part of the tyre) must be filled only with air and the products mentioned above.

Measuring wheel width

The width is to be measured with the wheel mounted on the car, on the ground, the vehicle in race condition, driver aboard, at any point along the circumference of the tyre, except in the area in contact with the ground.

When multiple tyres are fitted as part of a complete wheel, the latter must comply with the maximum dimensions for the group in which these tyres are used.

ART. 7 BODYWORK / CHASSIS / BODYSHELL

7.1 Minimum inside dimensions

If a modification authorised by Appendix J affects a dimension stated on the homologation form, this dimension may not be retained as an eligibility criterion for the car.

7.2 Cockpit

Only the following accessories may be installed in the cockpit : Tools, safety equipment, electronic equipment, materials and controls necessary for driving, windscreen washer water container.

On T1, T3 and T2 cars, it is permitted to install spare wheel(s), spare parts and ballast (if permitted) in the cockpit.

The passenger area and seat of an open car must in no way be covered.

Containers for helmets and tools situated in the cockpit must be made of non-inflammable material and they must not, in case of fire, give off toxic vapours.

In the case of a car with a crew of three and in which the back of the rearmost seat is situated more than 20 cm to the rear of the back of the seat which is furthest forward, the car must respect the following conditions :

- It must have four side doors equipped with transparent windows and allowing free access to the seats
- It must have a specific safety cage as defined in Article 283-8
- The front of the rear seat(s) must be positioned more than 20 cm to the rear of the back(s) of the front seat(s).

7.3 All bodywork and chassis / bodyshell panels of the vehicle must be at all times of the same material as those of the original homologated vehicle and must be of the same material thickness as that of the original homologated vehicle. All chemical treatments are forbidden.

7.4 Headlamp mounting and protection

The boring of holes in the front bodywork for light brackets is authorised, limited solely to mountings.

Non-reflecting protectors made from flexible material may be mounted on the headlamps and must be in contact with their glass.

7.5 Any object of a dangerous nature (inflammable products, etc.) must be carried outside the cockpit.

7.6 Flexible shielding may be used to protect the external switches or attachments of the compulsory safety equipment.

ART. 8 ELECTRICAL SYSTEM

8.1

The mounting of the alternator is free.

8.2

It is prohibited to use any electronic driving aids, or closed loop electronic systems.

Closed loop electronic systems are permitted for engine management only, as well as for differential locking/unlocking automatic systems in Group T2 in compliance with Article 284-6.2.

8.3 Lighting

A fog light may be changed for another, and vice versa, provided that the original mounting remains the same.

The fitting of a reverse light is authorised, provided that it only operates when the gear lever is in the reverse position.

Flashing lights are forbidden.

ART. 9 FUEL - COMBUSTIVE

9.1 Petrol

See Article 252-9.1.

9.2 Diesel

See Article 252-9.2.

9.3 Oxidant

Only air may be mixed with the fuel as an oxidant.

ART. 10 BRAKES

Carbon brakes discs are forbidden.

ART. 11 ENERGY STORAGE

The total quantity of recuperated energy stored in the car must not exceed 200 kJ; this energy may be re-used without exceeding 10 kJ by means of 1 kW maximum.

MODIFICATIONS APPLICABLE ON 01.01.2019

ART. 3 ENGINE

2-1 All engines into which fuel is injected or in which fuel is burned after an exhaust port are prohibited.

2-2

3.1 Supercharging

For supercharged diesel engines of T1 and T2 cars, the nominal cylinder capacity is multiplied by 1.5 and the car must pass into the class corresponding to the fictive volume thus obtained.

The car must be treated in all respects as if its cylinder capacity thus increased were its real capacity.

This is particularly be the case for assigning the car to its cylinder capacity class, its interior dimensions, its minimum number of places, its minimum weight, etc.

3.2 Equivalence formula between 2-stroke and 4-stroke engines

The nominal cylinder capacity of a two strokes engine must be multiplied by 1.9.

3.3 Equivalence formula between reciprocating piston and rotary engines (of the type covered by the NSU Wankel patents)

3.4 The equivalent cubic capacity is 1.8 times the volume determined between the maximum and minimum capacities of the combustion chambers.

Equivalence formula between reciprocating piston and turbine engines =

The formula is the following :

$$C = \frac{S(3.10 \times R) \cdot 7.63}{0.09625}$$

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3.10 Speed limiter

A speed limiter system operated manually from the cockpit is authorised.

The sole function of this system must be to limit the speed of the vehicle when the crew so decides.

The speed threshold used by the system must be lower than the maximum speed specified in the supplementary regulations of the competition for crossing villages.

3.11 Seals

Static and dynamic seals are free.

MODIFICATIONS APPLICABLE ON 01.01.2020

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