



The Federation of Motor Sports Clubs of India

2021

FMSCI 4-Wheeler Technical Regulations-RACING

Appendix J

Article 252

**General Prescriptions for
Production Cars (Group N), Touring Cars (Group A)**

Member of



2021 FMSCI Article 252 General Prescriptions for Production Cars (Group N) Touring Cars (Group A)

Art. 1 GENERAL REMARKS

1.1 Modifications

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.

1.2 Application of the general prescriptions

The general prescriptions must be observed in the event that the specifications of Production Cars (Group N), Touring Cars (Group A), do not lay down a more strict prescription.

1.3 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.

Ti-6Al-4V ASTM grade 5 type titanium alloy (5.5 < Al < 6.75, C max 0.10, 3.5 < V < 4.5, 87.6 < Ti < 91) is authorised, except for certain parts for which titanium is expressly forbidden.

No turning part of a turbocharger or of any equivalent supercharging system (except the rolling parts of the bearings) may be made from ceramic material or have a ceramic coating.

These restrictions do not concern the parts homologated with the standard vehicle.

The use of magnesium alloy sheet metal with a thickness less than 3 mm is prohibited.

1.4 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.

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

1.6 Any Group A car, homologated after 01.01.99, with the exception of kit variants, and competing in rallies must not be wider than 1800 mm.

Group N cars may compete in their integral version.

1.7 Free" part

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

Art. 2 DIMENSIONS AND WEIGHT**2.1 Ground clearance**

No part of the car 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).

2.2 Ballast

It is permitted to complete the weight of the car by one or several ballasts provided that they are strong and unitary blocks, fixed by means of tools with the possibility to fix seals, placed on the floor of the cockpit, visible and sealed by the scrutineers.

Application:

Touring Cars (Group A) and Group R cars.

No kind of ballast is authorised in Production Cars (Group N).

In rallies, however, the carrying of tools and spare parts for the car in the cockpit and/or inside the engine bay and/or inside the boot only is allowed under the conditions laid down in Article 253.

Art. 3 ENGINE**3.1 Super charging**

In case of supercharging, the nominal cylinder capacity is multiplied by 1.7 for petrol engines and by 1.5 for diesel engine, 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 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 reciprocating piston and rotary engines (of the type covered by the NSU Wankel patents)

The equivalent cubic capacity is equal to the volume determined by the difference between the maximum and minimum capacities of the combustion chamber.

3.3 Equivalence formula between reciprocating piston and turbine Engines

The formula is the following:

$S (3.10 \times R) 7.63$

$C = \underline{\hspace{10em}}$

0.09625

S = High pressure nozzle area - expressed in square centimetres 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:

$4.25 \times 1.15 \times 1.15 \times 1.15 \times 1.15 \times 1.15 \times 1.15$ or $4.25 \times (1.15)^6$.

C = Equivalent cubic capacity for reciprocating piston engines in cm^3 .

3.4 All engines into which fuel is injected and burned downstream of an exhaust port are prohibited.

3.5 Equivalencies between reciprocating piston engines and new types of engines

The FIA/FMSCI 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 orifices of the exhaust pipes must be placed at a maximum of 45 cm and a minimum of 10 cm from the ground.

The exit of the exhaust pipe must be situated within the perimeter of the car and less than 10 cm from this perimeter, and aft of the vertical plane passing through the center of the wheelbase.

Moreover, adequate protection ~~must~~ may 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 gasses.

An authentic copy of the homologation document must be presented to the scrutineers for the competition.

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 Cylinders

For non-sleeved engines, it is possible to repair the cylinders by adding material, but not parts.

Art. 4 TRANSMISSIONS

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 SUSPENSIONS

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

Art. 6 WHEELS

Wheels made partially or entirely from composite materials are prohibited.

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 (see Article 255-5.4).

Art. 7 BODYWORK / CHASSIS / BODYSHELL

7.1 Convertible vehicles must comply in all respects with the specifications applying to open cars. In addition, cars with a rigid retractable roof must be driven exclusively with the roof closed and locked up.

7.2 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.

7.3 Cockpit

Inversion of the driving side is possible, on condition that the original car and the modified car are mechanically equivalent and that the parts used are provided by the manufacturer for such a conversion for the family concerned.

In particular, the steering column must pass through the body shell only via the hole made for that purpose by the manufacturer for the family concerned.

For R5, Super 1600, Super 2000 and WRC cars, the inversion of the driving side must be obtained by a complete steering system homologated in option variant by the manufacturer.

The hole allowing the passage of the steering column through the bodyshell must be homologated with this system.

The original fitting of the air bags may be removed, without modifying the appearance of the bodywork.

7.4 All bodywork and chassis / body shell panels of the vehicle must beat all times of the same material as those of the original homologated car and must be of the same material thickness as that of the original homologated car.

The removal or the replacement of the devices for stopping the doors is authorized.

7.5 DELETED

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

7.7 DELETED

Art. 8 ELECTRICAL SYSTEM

8.1 DELETED

8.2 Alternators and Alternator-starters

The mounting of the alternators and alternator-starters are free.

8.3 DELETED

Art. 9 FUEL - COMBUSTIVE

9.1 Petrol

9.2 Diesel

For Diesel engines, the fuel must be gas oil which comes from a service station pump, or a fuel approved by the FIA or the ASN of the organising country supplied either in drums or in a dedicated tanker, without any additive other than of a lubricant.

If the fuel available locally for the competition does not comply with the above specifications, the ASN of the organising country must ask the FIA for a waiver in order to enable the use of such a fuel.

9.3 DELETED

9.4 Oxidant

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

9.5 DELETED

9.6 Tank ventilation

It is authorised to equip a tank with ventilation exiting through the car roof.

9.7 Installation of the FT3-1999, FT3.5-1999 or FT5-1999 tank

If a ~~FT~~FT3-1999, FT3.5-1999 or FT5-1999 tank is used ~~may~~ it may be placed either in the original location of the tank or in the luggage compartment.

There must be an orifice to evacuate any fuel which may have spread into the tank compartment. The position and the dimension of the filler hole as well as that of the cap may be changed as long as the new installation does not protrude beyond the bodywork and guarantees that no fuel leaks into one of the interior compartments of the car.

If the filler hole is situated inside the car, it must be separated from the cockpit by a liquid-tight protection.

Art. 10 BRAKES

Carbon brake discs are forbidden.

Art. 11 DELETED

Art.12 COOLING

Except for the sole purpose of cooling the driver, the transporting and/or use of any solid, liquid or gas cooling agent, whether inside or outside the car, is prohibited at all times throughout the competition.

F M S C I