



**The Federation of Motor Sports Clubs of India**

**2021**

**FMSCI 4-Wheeler Technical Regulations- RACING**

**Appendix J**

**Article 251**

**(Classification and Definitions)**

Member of



## 2021 FMSCI Article 251 Classification and Definitions

### Art. 1 CLASSIFICATION

#### 1.1 Categories and groups

The cars used in competition are divided up into the following categories and groups:

##### Category I

- Group N: Production Cars
- Group A: Touring Cars
- Group R: Touring Cars or Large-Scale Series Production Cars
- Group E-I: Free Formula Racing Cars

##### Category II

- Group RGT: GT Production Cars
- Group GT3: Cup Grand Touring Cars
- Group CN: Production Sports Cars
- Group D: International Formula Racing Cars
- Group E-II: Free Formula Racing Cars

##### Category III

- Group F Racing Trucks

#### 1.2 Cubic capacity classes

The cars are divided up into the following classes according to their cubic capacity:

1. up to 500 cm<sup>3</sup>
2. over 500 cm<sup>3</sup> and up to 600 cm<sup>3</sup>
3. over 600 cm<sup>3</sup> and up to 700 cm<sup>3</sup>
4. over 700 cm<sup>3</sup> and up to 850 cm<sup>3</sup>
5. over 850 cm<sup>3</sup> and up to 1000 cm<sup>3</sup>
6. over 1000 cm<sup>3</sup> and up to 1150 cm<sup>3</sup>
7. over 1150 cm<sup>3</sup> and up to 1400 cm<sup>3</sup>
8. over 1400 cm<sup>3</sup> and up to 1600 cm<sup>3</sup>
9. over 1600 cm<sup>3</sup> and up to 2000 cm<sup>3</sup>
10. over 2000 cm<sup>3</sup> and up to 2500 cm<sup>3</sup>
11. over 2500 cm<sup>3</sup> and up to 3000 cm<sup>3</sup>
12. over 3000 cm<sup>3</sup> and up to 3500 cm<sup>3</sup>
13. over 3500 cm<sup>3</sup> and up to 4000 cm<sup>3</sup>
14. over 4000 cm<sup>3</sup> and up to 4500 cm<sup>3</sup>
15. over 4500 cm<sup>3</sup> and up to 5000 cm<sup>3</sup>
16. over 5000 cm<sup>3</sup> and up to 5500 cm<sup>3</sup>
17. over 5500 cm<sup>3</sup> and up to 6000 cm<sup>3</sup>
18. over 6000 cm<sup>3</sup>

Unless otherwise specified in special provisions imposed by the FIA for a certain category of competitions, the organisers are not bound to include all the above-mentioned classes in the

Supplementary Regulations and, furthermore, they are free to group two or more consecutive classes, according to the particular circumstances of their competitions.

No Class can be subdivided.

## **Art. 2 DEFINITIONS**

### **2.1 General Conditions**

#### **2.1.1 Series Production cars (Category I)**

Cars of which the production of a certain number of identical examples (see definition of this word hereinafter) within a certain period of time has been verified at the request of the manufacturer, and which are destined for normal sale to the public (see this expression).

Cars must be sold in accordance with the homologation form.

#### **2.1.2 Competition cars (Category II)**

Cars built as single examples and destined solely for competition.

#### **2.1.3 Trucks (Category III)**

#### **2.1.4 Identical cars**

Cars belonging to the same production series and which have the same bodywork (outside and inside), same mechanical components and same chassis (even though this chassis may be an integral part of the bodywork in case of a monocoque construction).

#### **2.1.5 Model of car**

Car belonging to a production-series distinguishable by a specific conception and external general lines of the bodywork and by an identical mechanical construction of the engine and the transmission to the wheels.

#### **2.1.6 Normal sale**

Means the distribution of cars to individual purchasers through the normal commercial channels of the manufacturer.

#### **2.1.7 Homologation**

Is the official certification made by the FIA/FMSCI that a minimum number of cars of a specific model has been made on series-production terms to justify classification in Production Cars (Group N), Touring Cars (Group A), of these regulations.

Application for homologation must be submitted to the FIA/FMSCI by the ASN of the country in which the vehicle is manufactured and must entail the drawing up of a homologation form (see below).

It must be established in accordance with the special regulations called "Homologation Regulations", laid down by the FIA/FMSCI.

Homologation of a series-produced car becomes null and void 7 years after the date on which the series-production of the said model has been stopped (series-production under 10 % of the minimum production of the group considered).

The homologation of a model can only be valid in one group, Production Cars (Group N) / Touring Cars (Group A).

### 2.1.8 Homologation forms

All cars recognised by the FIA/FMSCI is the subject of a descriptive form called "Homologation Form" on which must be entered all data enabling identification of the said model.

This homologation form defines the series as indicated by the manufacturer.

According to the group in which the competitor's race, the modification limits allowed in international competition for the series are stated in Appendix J.

The presentation of the latest version of the applicable homologation forms is compulsory upon request by the scrutineers at any time during the competition.

In case of non-presentation, the penalty may go as far as to refuse the participation of the competitor in the competition.

**If a component varies in dimension than that stated in the homologation/ TDF form, it must be brought to the notice of the Technical Team of the ASN, in writing. The component then can be used ONLY after the Technical Team of ASN, being satisfied, and by way of a bulletin, allows its use. The time frame for its use will be after 3 weeks from the date on which the bulletin was issued. Any competitor found using components that vary in dimension from that of the homologation /TDF form, will lead to non-conformity, if no bulletin allowing its use has been issued by Technical Team of the ASN.**

This applies to components/ parts, that the manufacturer has stopped production, and is not available for after-market use. This also applies to components that are non-OE and market replacements that can be used as a replacement, provided the dimensions are not +/- 2% from that mentioned in the homologation form.

The form presented must imperatively be printed:

- Either on FIA/FMSCI stamped/watermarked paper
- Or on stamped/watermarked paper from an ASN only if the manufacturer is of the same nationality as the ASN concerned.

Likewise, if a Group A car fitted with a Kit Variant (see below) concerning the chassis/shell is used, the original certificate supplied at the time of mounting by a center approved by the manufacturer must be presented.

Should the date for the coming into force of a homologation form fall during a competition, this form is valid for that competition throughout the duration of the said competition.

With regard to Production Cars (Group N), apart from the specific form for this group, the Touring Cars (Group A) form must also be submitted.

In case of any doubt remaining after the checking of a model of car against its homologation form, the scrutineers must refer either to the maintenance booklet published for the use of the make's distributors or to the general catalogue in which are listed all spare parts.

In case of lack of sufficient accurate documentation in the homologation/ TDF forms, scrutineers may carry out direct Scrutineering by comparison with an identical part available from a concessionaire.

It is up to the competitor to obtain the homologation form concerning his car from his ASN.

#### **Description:**

A form breaks down in the following way:

- A basic form giving a description of the basic model.
- At a later stage, a certain number of additional sheets describing "homologation extensions", which can be "variants", or "errata" or "evolutions".

#### a. Variants (VF, VP, VO, VK)

These are either supply variants (VF) (two suppliers providing the same part for the manufacturer and the client does not have the possibility of choice), or production variants (VP) (supplied on request and available from dealers), or option variants (VO) (supplied on specific request), or "kits" (VK) (supplied on specific request).

**b. Erratum (ER)**

Replaces and cancels an incorrect piece of information previously supplied by the constructor on a form.

**c. Evolution of the type (ET)**

Characterizes modifications made on a permanent basis to the basic model (complete cessation of the production of the car in its original form).

**Use****1) Variants (VF, VP, VO, VK)**

The competitor may use any variant or any article of a variant as he wishes, only on condition that all the technical data of the vehicle, so designed, conforms to that described on the homologation form applicable to the car, or expressly allowed by Appendix J.

The combination of several VOs on the following parts is prohibited: Turbocharger, brakes and gearbox.

For example, the fitting of a brake caliper as defined on a variant form is only possible if the dimensions of the brake linings, etc. obtained in this way, are indicated on a form applicable to the car in question. (For Production Cars (Group N), see also Art. 254-2).

As far as Kit Variants (VK) are concerned, they may now be used only under the conditions indicated by the manufacturer on the homologation form.

This concerns in particular those groups of parts which must be considered as a whole by the competitor, and the specifications which are to be respected, if applicable.

**2) Evolution of the type (ET)**

(For Production Cars – Group N, see also Art. 254-2)

The car must comply with a given stage of evolution (independent of the date when it left the factory), and thus an evolution must be wholly applied or not at all.

Besides, from the moment a competitor has chosen a particular evolution, all the previous evolutions must be applied, except where they are incompatible.

For example, if two brake evolutions happen one after another, only that corresponding to the date of the stage of evolution of the car may be used.

**2.1.9 Mechanical components**

All those necessary for the propulsion, suspension, steering and braking as well as all accessories whether moving or not which are necessary for their normal working.

**2.1.10 Original or series parts**

A part which has undergone all the stages of production foreseen and carried out by the manufacturer of the vehicle concerned, and originally fitted on the vehicle.

**2.1.11 Materials – Definitions****X Based Alloy (e.g. Ni based alloy)**

X must be the most abundant element in the alloy on a % w/w basis. The minimum possible weight percent of the element X must always be greater than the maximum possible of the sum of each of the other individual elements present in the alloy.

### X-Y-based alloy (e.g. Al-Cu-based alloy)

X must be the most abundant element.

In addition, element Y must be the second highest constituent(%w/w) after X in the alloy.

The minimum possible sum of the weight percentages of the elements X and Y must always be greater than the maximum possible percentage of the sum of each of the other individual elements present in the alloy.

### Intermetallic materials (e.g. TiAl, NiAl, FeAl, Cu<sub>3</sub>Au, NiCo)

These are materials where the material is based upon intermetallic phases, i.e. the matrix of the material consists of more than 50%v/v intermetallic phase(s).

An intermetallic phase is a solid solution between two or more metals exhibiting either partly ionic or covalent, or metallic bonding with a long-range order, in a narrow range of composition around the stoichiometric proportion.

### Composite materials

Material formed from several distinct components, the association of which provides the whole with properties which none of the components taken separately possesses.

More specifically, these are materials where a matrix material is reinforced by either a continuous or discontinuous phase.

The matrix can be metallic, ceramic, polymeric or glass based.

The reinforcement can be present as long fibres (continuous reinforcement) or short fibres, whiskers and particles (discontinuous reinforcement).

### Metal Matrix Composites (MMCs)

These are composite materials with a metallic matrix containing a phase of more than 2%v/v which is not soluble in the liquid phase of the metallic matrix.

The 2%v/v is to be understood: "at the lowest temperature of the matrix liquid phase".

### Ceramic materials (e.g. but not restricted to Al<sub>2</sub>O<sub>3</sub>, SiC, B<sub>4</sub>C, Ti<sub>5</sub>Si<sub>3</sub>, SiO<sub>2</sub>, Si<sub>3</sub>N<sub>4</sub>)

Inorganic, non-metallic material made from compounds of a metal and a non-metal.

Ceramic material may be crystalline or partly crystalline.

It is formed by a fused mass, which solidifies as it cools, or which is formed and matured at the same time, or subsequently, by the action of heat.

## **2.1.12 Seal**

Element used for identifying components of a vehicle for either of the following purposes:

- Control of the use or replacement of a component
- Follow up of the number of components used or registered as required by the applicable regulations
- Registration of a component seized for carrying out immediate or differed technical checks
- Prevent the dismantling and/or the modification of a component or part of an assembly
- Any other need for the application of technical and/or sporting Regulations

## **2.2 Dimensions**

Perimeter of the car seen from above

The car as presented on the starting grid for the competition in question.

## **2.3 Engine**

### **2.3.1 Cylinder capacity**

Volume V generated in cylinder (or cylinders) by the upward or downward movement of the piston(s).

$$V = 0.7854 \times b^2 \times s \times n$$

where: b = bore

s = stroke

n = number of cylinders

### **2.3.2 Supercharging**

Increasing the weight of the charge of the fuel-air mixture in the combustion chamber (over the weight induced by normal atmospheric pressure, ram effect and dynamic effects in the intake and/or exhaust systems) by any means whatsoever.

The injection of fuel under pressure is not considered to be supercharging (see Article 252-3.1 of the General Prescriptions).

### **2.3.3 Cylinder block**

The crankcase and the cylinders.

### **2.3.4 Intake manifold**

#### In the case of a carburettor induction system

Part collecting the air-fuel mixture from the carburettor(s) and extending to the cylinder head gasket face.

#### In the case of a single-valve injection induction system

Part extending from the body of the butterfly valve inclusive to the cylinder head gasket face, collecting and regulating the air or the air-fuel mixture flow.

#### In the case of a multi-valve injection induction system

Part extending from the butterfly valves inclusive to the cylinder head gasket face, collecting and regulating the air or the air-fuel mixture flow.

#### In the case of a diesel engine

Unit mounted to the cylinder head, which distributes the air from one inlet or a sole duct to the cylinder head ports.

### **2.3.5 Exhaust manifold**

Part collecting together at any time the gases from at least two cylinders from the cylinder head and extending to the first gasket

separating it from the rest of the exhaust system.

**2.3.6** For cars with a turbocharger, the exhaust begins after the turbocharger.

### **2.3.7 Oil sump**

The elements bolted below and to the cylinder block which contain and control the lubricating oil of the engine.

### **2.3.8 Engine compartment**

Volume defined by the fixed or detachable chassis and bodywork panels surrounding the engine.

The transmission tunnel is not part of the engine compartment.

### **2.3.9 Lubrication by dry sump**

Any system using a pump to transfer oil from one chamber or compartment to another, to the exclusion of the pump used for the normal lubrication of the engine parts.

### **2.3.10 Static gasket for mechanical parts**

The only function of a gasket is to ensure the sealing of at least two parts, fixed in relation to each other.

The distance between the faces of the parts separated by the gasket must be less than or equal to 5 mm.

### **2.3.11 Exchanger**

Mechanical part allowing the exchange of calories between two fluids.

For specific exchangers, the first-named fluid is the fluid to be cooled and the second-named fluid is the fluid that allows this cooling.

E.g. Oil/Water Exchanger (the oil is cooled by the water).

### **2.3.12 Radiator**

This is a specific exchanger allowing liquid to be cooled by air. Liquid / Air Exchanger.

### **2.3.13 Intercooler or Supercharging Exchanger**

This is an exchanger, situated between the compressor and the engine, allowing the compressed air to be cooled by a fluid. Air /Fluid Exchanger.

## **2.4 Running gear**

The running gear includes all parts totally or partially unsuspended.

### **2.4.1 Wheel**

Flange and rim.

By complete wheel is meant flange, rim and tyre.

### **2.4.2 Friction surface of the brakes**

Surface swept by the linings on the drum, or the pads on both sides of the disc when the wheel achieves a complete revolution.

### **2.4.3 McPherson suspension**

Any suspension system in which a telescopic strut, not necessarily providing the springing and/or damping action, but incorporating the stub axle, is anchored on the body or chassis through single attachment point at its top end, and pivots at its bottom end either on a transverse wishbone locating it transversally and longitudinally, or on a single transverse link located longitudinally by an antiroll bar, or by a tie rod.



#### 2.4.4 Twist beam axle

Axle made of two longitudinal trailing arms, each attached to the bodyshell through a joint, and rigidly attached one to the other through a transverse structure, the torsion stiffness of which is low compared to its bending stiffness.

### 2.5 Chassis - Bodywork

#### 2.5.1 Chassis

The overall structure of the car around which are assembled the mechanical components and the bodywork including any structural part of the said structure.

#### 2.5.2 Bodywork

##### Externally:

All the entirely suspended parts of the car licked by the airstream.

##### Internally:

Cockpit and boot.

##### Bodywork is differentiated as follows:

- Completely closed bodywork;
- Completely open bodywork;
- Convertible bodywork with the hood in either supple (drop-head) or rigid (hardtop) material.

#### 2.5.3 Seat

Equipment made of one base and one backrest.

##### Backrest

Surface measured upwards from the bottom of a normally seated person's spine.

##### Seat basis

Surface measured from the bottom of the same person's spine towards the front.

#### 2.5.4 Luggage compartment

Any volume distinct from the cockpit and the engine compartment inside the vehicle.

This volume is limited in length by the fixed structures provided for by the manufacturer and/or by the rear of the seats and/or, if this is possible, reclined at a maximum angle of 15° to the rear.

This volume is limited in height by the fixed structures and/or by the detachable partitions provided for by the manufacturer, or in the absence of these, by the horizontal plane passing through the lowest point of the windscreen.

#### 2.5.5 Cockpit

Structural inner volume which accommodates the driver and the passengers.

### 2.5.6 Bonnet

Outer part of the bodywork which opens to give access to the engine.

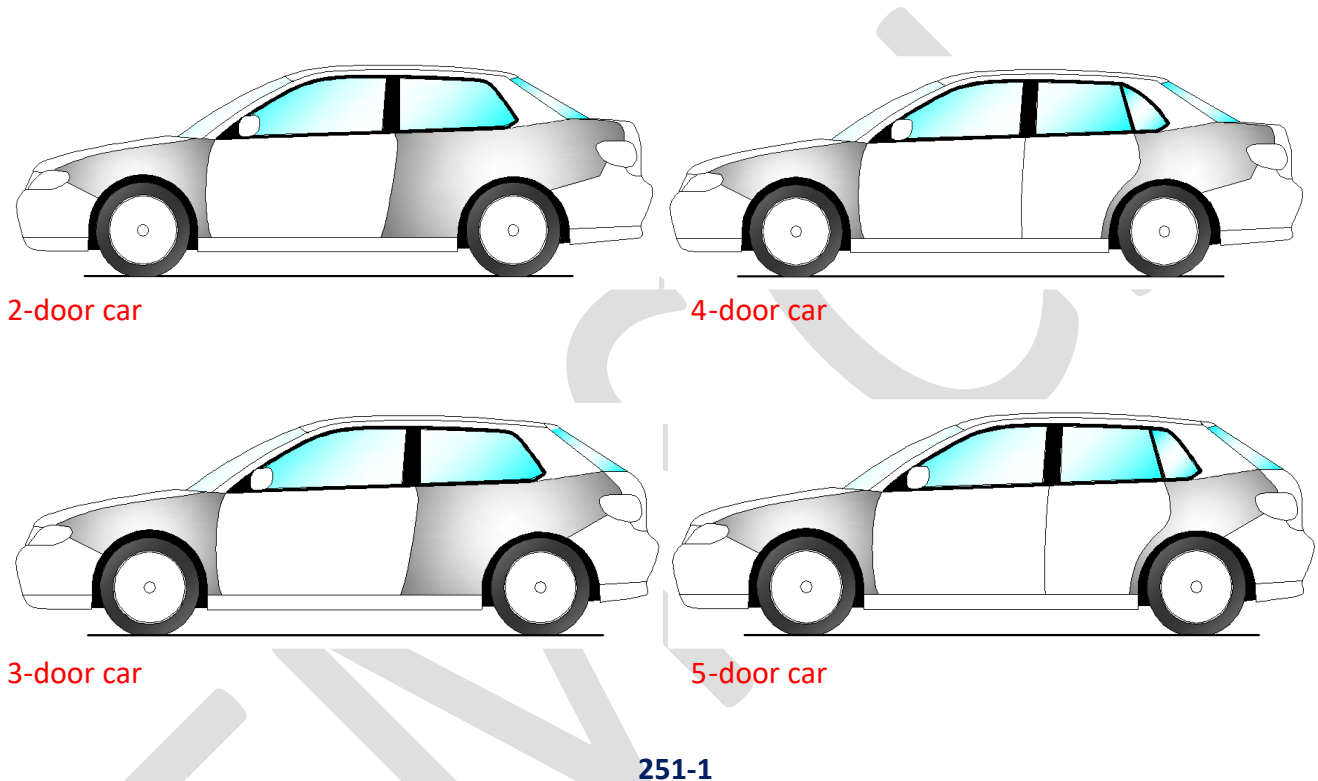
### 2.5.7 Fenders

A fender is the area defined according to Drawing 251-1 and to Drawing XIII-A1 (or XIII) of the Group A homologation form (if applicable).

#### Rear fender

The upper limit of the fender in side view is made of:

- The lower edge of the visible part of the rear side window in closed position (Drawing 251-1),
- The line joining the lower rear corner of the visible part of the rear side window in closed position and the lower corner of the visible part of the rear window (Drawing 251-1).



### 2.5.8 Louvres

Combination of inclined slats arranged within the perimeter of an opening that conceal an object situated behind them when looked at perpendicularly to the surface of the opening.

### 2.5.9 Diurnal lights

Lights facing in a forward direction and used to make the vehicle more easily visible when driving during daytime.

The diurnal lights must switch off automatically when the headlamps are switched on.

## 2.6 Electrical system

#### Headlight:

Any signal the focus of which creates an in-depth luminous beam directed towards the front.

## 2.7 Fuel tank

Any container holding fuel likely to flow by any means what so ever towards the main tank or the engine.

## **2.8 Automatic Gearbox**

This is made up of a hydrodynamic torque converter, a box with epicyclic gears equipped with clutches and multi-disc brakes and having a fixed number of reduction gears, and a gear change control.

The gear change can be achieved automatically without disconnecting the engine and gearbox, and thus without interrupting the engine torque transmission.

Gearboxes with continually variable transmission are considered as automatic gearboxes with the particularity of having an infinite number of reduction ratios.

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