

## 2024 Technical Regulations for Indian Junior Touring Cars – IJTC

The Following Articles of 2024 FMSCI Appendix J are applicable

Art.251 – Classification and Definitions

Art.252 – General Prescriptions for Production Cars(Group N), Touring Cars(Group A)

Art.253 – Safety Equipment (Groups N, A)

Art.254 – Specific Regulations for Production Cars (Group N)

All modifications are forbidden unless expressly authorized by the regulations specific to the group as mentioned below.

### Art.1 – Eligible Vehicles & Classes

Any large-scale series production Touring cars manufactured or assembled in India.

The vehicles must be homologated with the FMSCI or have a completed TDF (Technical Data Form) to be eligible to compete.

Only vehicles sold as a 2010 model or newer with Normally aspirated engines are allowed.

Engine displacement up to 1625cc.

### Art.2 – Dimensions & Minimum Weight

Track width is allowed to be increased by a maximum of 80mm overall from the Homologation / TDF data.

The minimum weight of the car will be “cc” divided by a constant which is **1.65**

In order to balance performance, the FMSCI reserves the right to change the minimum weights at any point of time as deemed fit.

These minimum weights must be respected at all times during the event.

The minimum weight of the car measured will be as raced with water, oil, fuel and the driver with complete safety gear (Helmet, inners, suit, gloves, shoes, balaclava etc.)

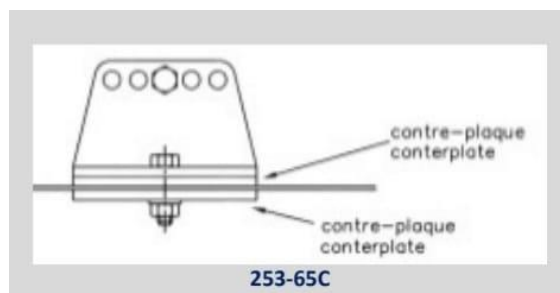
It is permitted to complete the weight of the car by one or more ballast weights provided that they are unitary blocks, rigidly fixed by means of tools on to the **floor of** bodyshell / chassis in a location clearly visible to the scrutineers, with the provision for sealing.

**Maximum mass of a single ballast is 30kgs, Maximum mass of ballast at each mounting location is 30kgs and must respect drawing 253-65C.**

**Ballast must only be made of lead(no other materials).**

The ballast must be attached to the bodyshell/chassis at least at two fixing points by bolts of at least grade 8.8 with a minimum diameter of 10mm, with counter plates, according to the principle of Drawings 253-65C

The ballast should not have any sharp edges and all the edges must have a minimum radius of 5mm.



The minimum area of contact between bodyshell /chassis and counter plate is 40cm<sup>2</sup> for each fixing point.

Any movable ballast system is forbidden.

Failing to meet the required weight regulations will result in disqualification or exclusion of the car for the relevant session.

### **Art.3 – Engine**

Swapping of engine / powertrain and its accessories from another car from the same manufacturer are permitted provided the donor car is also a 2010 or newer model. Engine with accessories such as alternator, starter motor, power steering system, radiator, gearbox *and* driveshafts maybe swapped over. For this purpose driveshafts are FREE.

The swapped part should also be Homologated or have a TDF as a variant.

Modifications are permitted to the Water Pump pulley and the impeller.

Fuel lines may be modified. Fuel hoses, cables and wiring may be modified to suit the engine.

#### **3.1-Engine & Gearbox Mounting**

Modification to the engine mounting bracket / gearbox / support mount to enable fitment to the OE chassis mounts is permitted.

Chassis mounting location cannot be altered / modified and should remain as OE in the same location.

Engine and Gearbox Mount materials FREE.

Modifications to the bracket to enable fitment on to chassis is permitted.

#### **3.2-Compression Ratio**

Facing of the cylinder head is allowed but must respect the Homologation Art 321) Sub Art g).

#### **3.3-Cylinder Block**

As supplied by manufacturer, as per Homologation/TDF

#### **3.4-Maximum Bore Allowed**

Re-boring of the engine is allowed, up to a maximum of 0.5mm over the standard bore size, without this leading to the displacement exceeding the class capacity.

#### **3.5-Piston**

OE / After market pistons can be used provided they respect the Homologation / TDF data.

Minimum weight of the piston remains as per Homologation / TDF

If the bore of the engine is increased an oversize piston may be used up to a maximum of 0.5mm over the standard diameter, only if the oversize piston is homologated/TDF.

#### **3.6-Connecting Rod**

OE connecting rods are only allowed.

#### **3.7-Crank Shaft**

Crank pulley is FREE

#### **3.8-Flywheel**

Flywheel is FREE, provided that the dimension should maintained as per the Homologation / TDF data of the Engine used.

Flywheel weight FREE

### 3.9-Cylinder Head

Cylinder head Porting is allowed but adding of material is not allowed.

Gasket FREE

### 3.10-Fuel Injection System & Throttle body

Individual Throttle bodies are not allowed.

Throttle body & The sensors mounted on the Throttle body are FREE.

Vehicles equipped with Motorized Throttle body may change to a mechanical Throttle body or vice versa.

### 3.11-Sensors & Actuators

Fitting of wide band O2 sensor is permitted.

### 3.12-CAM Shaft

OE as per the Engine configuration.

Adjustable CAM pulley is permitted.

### 3.13-Intake & Exhaust Valves

The valves are free so long as they are made from steel, meet the homologated length and diameter. The shape of the valve seating area may be altered.

### 3.14-Intake Manifold

FREE

But the Mounting points of the Intake Manifold should be same as OE.

Fitment should not entail the modification of other components, (Ex. Fire wall & Bonnet etc).

Air filter and its plumbing is FREE, but must be in the confines of the engine compartment.

### 3.15-Exhaust System

FREE

Fitment should not entail the modification of the other components.

The exit of the exhaust pipe may be on either side of the car behind the mid point of the wheel base and below the door sill or at the rear of the car. (must respect Art.7.1 first point)

### 3.16-Ignition System

Spark plugs, plug wire, coil and trigger wheel and rotor are free provided they are mechanically interchangeable with the original part.

### 3.17-Cooling System

Only water can be used in the radiator as a coolant

Larger Radiators can be used but mounting points should be inside the engine compartment.

### 3.18-Lubrication System

Oil coolers can be fitted but must be in the confines of the engine compartment.

The fitting of baffles in the oil sump is authorized.

Oil pumps are FREE.

Oil catch can/tank is mandatory

### 3.19-Induction System

Not Applicable

### Art.4 – Fuel Circuit

Fuel FREE

Fuel rails FREE

#### 4.1-Fuel Tank

As supplied by manufacturer, as per Homologation/TDF

#### 4.2-Fuel Pump

Fuel pump is FREE

Number has to be as per Homologation / TDF

### Art.5 – ECU, Wiring Harness & Electrical Equipment

#### 5.1-ECU & Wiring Harness

FREE- including the wiring harness

#### 5.2-Battery

i)Location of the battery:

- Battery must be located in its original location or in the cockpit.
- If Installed in the cockpit, the battery must be situated anywhere behind the base of the driver's or co-driver's/passenger seat.

ii)Battery fixing:

- Battery must be securely fixed and the positive terminal must be protected.
- If the battery is moved from its original position, it must be attached to the body using a metal seat and two metal clamps with an insulating covering, fixed to the floor by bolts and nuts.
- The insulation used for covering the battery must be of fire proof material. In case of any dispute concerning on the fire proof material, the decision of the FMSCI Chief Scrutineer/Technical Delegate will be final.
- For attaching these clamps, metallic bolts with a diameter of at least 8mm must be used, and under each bolt, a counter plate at least 3mm thick and with a surface of at least 20cm<sup>2</sup> beneath the metal of the bodywork.
- If the wet battery is moved from its original position into cockpit it must be rigidly fixed and the entire battery must be covered in a leak proof casing and the positive terminal must be protected and an insulation covering must be done between the battery and the leak proof outer casing. The decision of the Technical Delegate/Chief Scrutineer is final.

### Art.6 – Power Train

#### 6.1-Driven Wheels

Only 2-Wheel Drive Cars are permitted(front or rear wheel drive).

#### 6.2-Clutch

Clutch, Pressure Plate and Release Bearing are free, provided that the dimension are maintained as per the homologation / TDF data of the Engine used.

### 6.3-Gearbox

Gear Box housing must be OE.

Gear Ratios Free, Synchronized or Non-Synchronized (Dog Box) Final Drive Ratio Free.

Linkages are free provided they retain the gear pattern and selection on series model.

Welding and adding of materials is not allowed to the gearbox housing.

### 6.4-Differential

Final Drive Ratio FREE

Mechanical type Limited Slip Differential (LSD) is authorized provide that it can be fitted into the original Housing.

Removal of material on the inside of the casing to accommodate fitment of the LSD and final drive is permitted.

### 6.5-Transmission Shafts

Drive shafts FREE

## Art.7 – Axles & Suspension

### 7.1-Suspension System

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

Front and Rear suspension top mount - fitting of uniball joint is permitted and modifications required in the strut tower to accommodate the uniball joint is permitted.

Front and Rear Suspension Top mounts Free

Camber and Caster can be modified (camber/caster change only through top mounts)

3-way adjustable dampers are permitted - (One way, two way and three-way dampers are allowed)

### 7.2-Axle Assembly

In case of a torsion beam assembly the hub, the spindle including, flange of the torsion beam can be machined and/or shimmed to achieve the required geometrical change.

Front suspension lower arm ball joints are FREE.

No spherical bearings or rose joints are permitted in place of front suspension bushings.

### 7.3-Stabilisers

The mounting points/location of the anti-rollbar has to remain same. Diameter is free, and link rods are free.

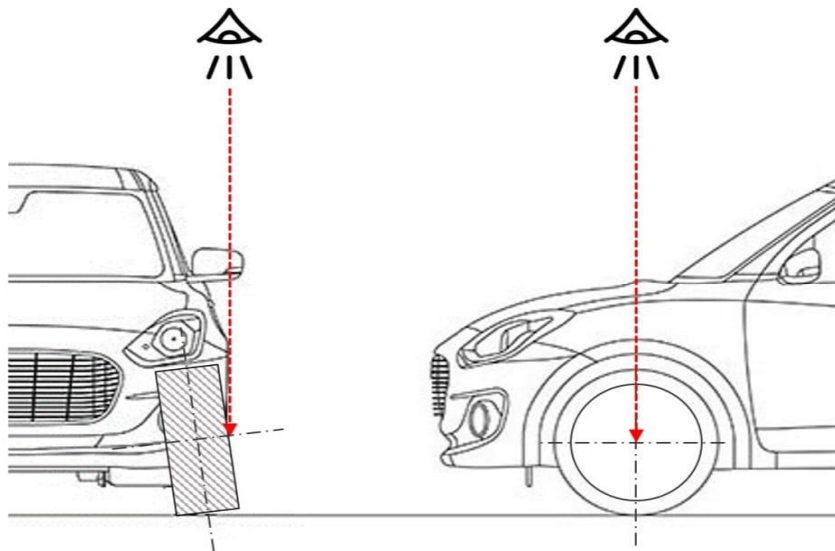
## Art.8 – Running Gear

### 8.1-Wheels(Rims & Tyres)

Wheel size is FREE. The competitor has the right to choose the rim size based on the tyre size provided / supplied by the organizer.

Wheel Studs FREE

No portion of the tyre above the centre line must be visible when viewed from the top(see drawing 8.1-1)



8.1-1

### 8.2-Wheel Assembly(Hub & Knuckle)

Wheel spacers between wheel and hub are permitted respecting the maximum Track width allowed as per Article 2

Fixing of Hub ring is permitted and should be fixed on the alloy wheel, Hub ring material is FREE.

### 8.3-Brake System

Handbrake if fitted the locking mechanism must be disabled. A hydraulic fly off hand brake is permitted.

Brake Pad material is FREE

The shape and dimension must be maintained as per either the OE or swapped calliper.

Brake Hoses FREE, Brake Fluid FREE

Master Cylinder is FREE

After market drilled/slotted rotors are permitted, dimensions as per Homologation / TDF

Larger Front rotor-calliper and Rear drum or Rear rotor and calliper can be used from the same manufacturer provided that they are swapped in full from the donor car.

(eg. Polo GTI Front & Rear Brake calliper should be used as donor part in the same VW category car for braking)

The swapped part should be Homologated / TDF as a variant or if Homologated earlier that data can be used.

Failing to meet the above required regulations will result in disqualification or exclusion of the car for the relevant session.

Brake Bias / Proportioning valve is FREE.

Brake booster may be removed

### 8.4-Steering System

The steering wheel is free.

The locking system of the anti-theft steering lock must be rendered inoperative/removed.

## Art.9 – Body Work

### 9.1-Interior

1. The front & rear passenger seat(s) must be removed.
2. The removal of door pads soundproofing, insulating material and carpeting is permitted.
3. Extra gauges or meters are permitted.

4. Spare wheel, AC, heating system and all its accessories may be removed.
5. Rear doors, Front passenger & driver doors glasses and the rear windshield may be replaced with clear Polycarbonate sheet of minimum 3mm thickness and must be fastened with rivets or bolts. The use of transparent or colorless anti shatter film on the side windows is mandatory if the original glass is used.
6. The Rear doors & Front doors winder mechanism may be removed.
7. Holes on the rear speaker panel can be done as racing trims.
8. Fitting of FIA approved nets on OE door/fiber glass door is permitted.
9. Dead pedal for driver comfort is permitted.
10. Dash board, its console and its fittings may be removed.
11. Front & Rear fixed Quarter glasses may be replaced with Perspex.
12. Fixing of Driver Hydration bottle is permitted but the bottle must be removable only by using tools. (no press fits allowed).

## 9.2-Exterior

1. Only the front bonnet, front fenders, rear boot, rear doors, front passenger driver doors and Tail gate may be made of fiberglass, metal, composite or a combination but it must replicate the original shape(The Moulded/Fabricated/Tinkered component should be replicate the original shape and dimensions in all respects).
2. Front passenger door must be openable from both inside and outside of the car. Headlights can be removed. However, the opening must be covered with a fiberglass / metal plate of same shape/profile and size as OE Headlights and be safely secured, unless used as air intake ducts. However, headlights must be fixed and working for night racing and need not be OE
3. The Frame/Cowl which houses the radiator assembly, if made of plastic, may be made/repaired/strengthened with metal, so long as the original position of the components, it houses remains the same as provided by the manufacturer.
4. The original grill may be replaced with a mesh. Material is free. No other modification to the original opening is allowed.
5. Bonnet vents are permitted.
6. It is permitted to replace the OE Bumpers with Fibre glass replicas.
7. Body kits (Front bumper, Rear bumper, Rear spoiler) are permitted. Overall Length of the cars must be as per manufacturer specification. The front Overhang measured from the front wheel centre line to the extremity of the body work is allowed to increase by maximum of 100mm above the manufacturer's specification for fitment of body kits.
8. Bumper modifications are permitted for the purpose of cooling of engine and brakes, provided the original basic shape is maintained. All the openings in the Bumper can be covered with Mesh Grill(steel, plastic, etc). Holes/openings on the rear bumper are allowed.
9. Fender linings may be removed. If fitted shape and material are FREE
10. Driver ventilations are allowed at front driver window, front passenger side window, rear door windows, rear windshield, front quarter glass, rear quarter glass and on the roof top. Maximum opening for each driver ventilation is 225 sq. cm.
11. Fitting of FIA approved nets on OE doors/fibre glass doors is permitted.
12. Panel beating on all the four fenders is allowed, so that they comply with the technical requirements of tyre within the fender limits. (Art.8.1 & Fig 8.1-1).
13. Rear view visibility must be ensured by two external rear-view mirrors (one on the right and one on the left). The rear-view mirrors may be replaced with any aftermarket replacements, as long as the viewing area is equal to or more than the OE part.
14. An Inside rear-view mirror is mandatory
15. Heat protective/damping shield is allowed to be fixed on the engine compartment firewall side.



### Fiberglass Specification

Fiberglass recommended to be a minimum of 3mm thickness.

Fire Retardant(FRR) is Recommended in fiberglass making.

Ribs in the Fiberglass bonnet is MANDATORY.

THE TECHNICAL DELEGATE (in his absence the Chief Scrutineer) IS THE FINAL AUTHORITY ON THE CONDITION, STRUCTURE AND SAFTY OF THE MODIFIED PARTS.

## **Art.10 – Safety Requirements**

As per 2024 FMSCI Racing Regulations Appendix-J Art 253 Safety Equipment (Group N, A) and As per FMSCI 2024 Safety Requirements for 4Wheeler.

### **10.1-Driver Safety Equipment**

As per FMSCI 2024 Safety Requirements for 4Wheeler.

**Its highly recommended to use FHR**

**From 01.06.2024 its mandatory to use FHR along with Helmets compatible to use with FHR as per FIA standards.**

### **10.2-Roll cage**

As per 2024 FMSCI Racing Regulations Appendix-J Art 253 Safety Equipment (Group N, A) Art-8.Safety Cages

### **10.3-Seat & Seat Belt**

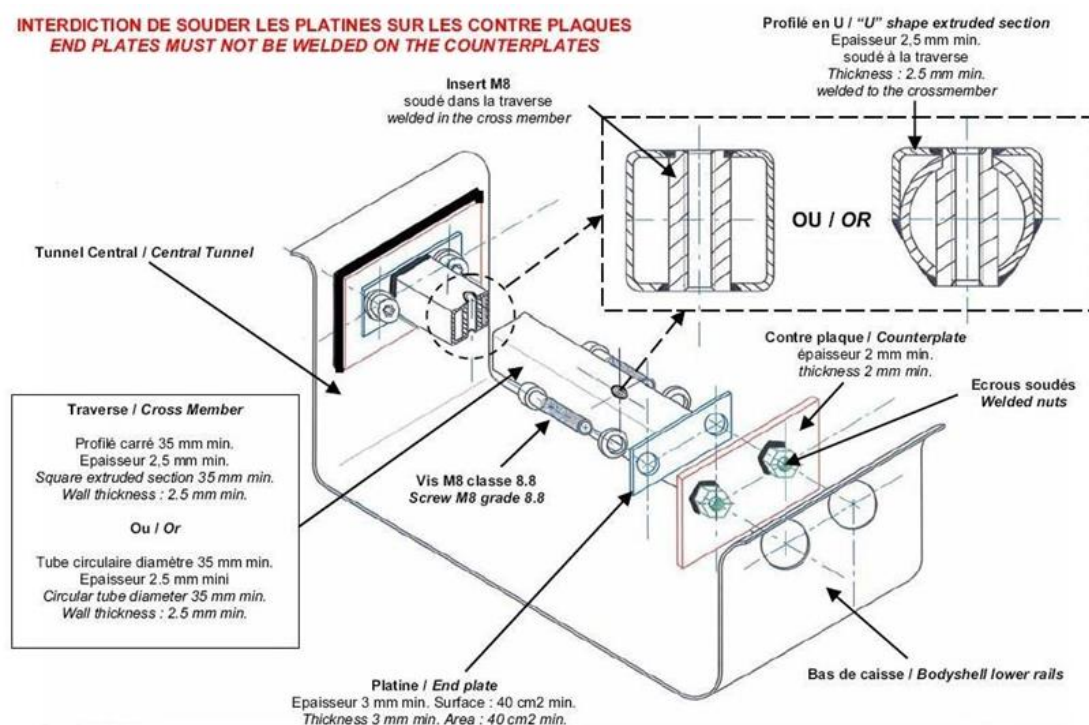
As per FMSCI 2024 Safety Requirements for 4Wheeler.

**From 01.06.2024 Seat Anchorage point and Seat support must only as per the following methods**

**1) If OEM seat anchorage points are not used(seat support must be fixed on to the cross member):**

**It must follow the drawing 253-65B of FMSCI Art 253-Safety Equipment(Group N, A)**

**The seat support must be fixed on to the anchorage points of cross member for fixing seats via at least 4 mounting points per seat, using bolts minimum M8 of grade 8.8**



**253-65B**



**FITTING INSTRUCTIONS**

- 1- Drill holes (larger than nut outer diameter) in the bodysell lower rail and in central tunnel wall.
- 2- Weld the nuts on the counter plates, then weld these on the bodysell lower rail on the central tunnel wall.
- 3- Weld the 2 threaded inserts in the cross member, then weld the endplates at each end of the cross member.
- 4- Fix the assembly through 4 number of M8 bolts of grade 8.8 which are screwed in the welded nuts.

2) If OEM seat anchorage points are used on to fix the seat supports directly onto the shell/chassis:

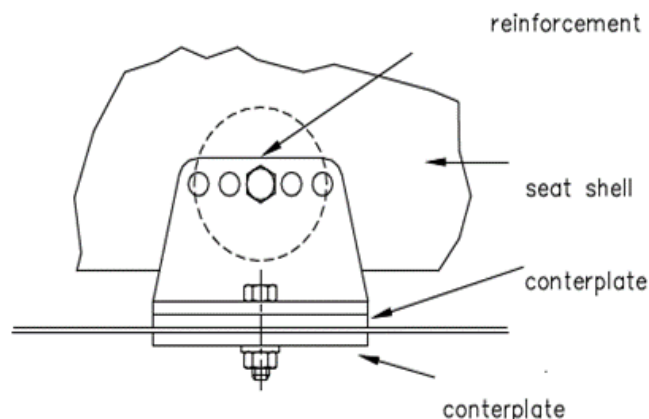
It must follow the drawing 253-65 of FMSCI Art 253-Safety Equipment(Group N, A)

The seat supports must be attached directly to the OEM seat anchorage points on the body shell/chassis via at least 4 mounting points per seat using bolts with minimum M8 of grade 8.8 and counter plates, according to the Drawing 253-65.

The minimum area of contact between support, shell/chassis and counter plate is 40 cm<sup>2</sup> for each mounting point.

The minimum thickness of the seat supports and counter plates is 3 mm for steel and 5 mm for light alloy materials.

The minimum longitudinal dimension of each support is 6 cm.



**253-65**

## 10.4-Fire Extinguisher

The minimum Quantity of Extinguishant for system mounted(plumbed in in system) must be 3kg.

Manual Extinguishers

Minimum Quantity of Manual Extinguishant:

- AFFF 2.4liters
- FX G-TEC 2.0 kg
- Viro 3 2.0kg
- Zero360 2.0kg
- Powder 2.0kg

Fire Extinguishers to be rigidly fastened with a quick release clamps (minimum 2 nos.) fitted in an easily accessible and a visible position. The mounting bracket of the fire extinguisher must be bolted to the floor with a bolt of minimum 10 mm diameter. The minimum bracket thickness-2mm MS SHEET METAL

### 10.5-Protective Padding

Where the occupant's bodies could come into contact with the safety cage, flame retardant padding as per FMSCI 2024 Safety Requirements for 4Wheeler must be provided for protection.

### Art.11 – Data Acquisition

Sensors(for driver development only)

Fitting of additional Sensors are allowed, for data acquisition.

Fitting of Additional Sensors are allowed provided these cannot have any form of actuators or motors to make any electro mechanical changes

Any device capable of making electro mechanical changes without human intervention will be classified as actuator these are not allowed.

The additional sensors is for driver development and input only.

No communication of any sort between the driver and the pits or other drivers. Whether by radio, cellphone or by any other communication signals between car and pit once the car is on the track.

The drivers are not allowed to carry cell phones while on the track during the sessions.

Violation of the above regulations will entail disqualification.

### Art.12 – Hybrid System

Hybrid unit and its components must be rendered inoperative or be removed in full.

**Note: Wherever in this regulation its mentioned that swapping of components from the same manufacturer/family is allowed, the component used must be a Homologated/TDF component.**

**Failing to meet the above required regulations will result in disqualification or exclusion of the car for the relevant session.**

Note: If any ambiguity or missing data from the Homologation / TDF form, the FMSCI may source any component from the OE manufacturers to compare dimensions.

***NOTE: Changes for the 2024 Technical Regulations are highlighted in Yellow***

**\*\*END\*\***