

FMSCI T2 REGULATIONS-2019

Specific regulations for Modified Cross Country Cars T1 (BASED ON FIA REGULATIONS – APPENDIX J – ARTICLE 285)

Mechanical propelled single-engine land vehicles with 4 to 8 wheels, propelled by their own means, taking continually a real bearing on the ground, and of which the propelling device and steering are controlled by a driver on board each vehicle.

These cars may be unit-built, but must comply with the International Convention on Road Traffic, particularly with regard to the following points : windscreen wipers and washers, speedometer, lighting.

Automobile Make: (National Entries – need to confirm with the Indian Road Traffic and Indian Motor Vehicle Act)

An "automobile make" corresponds to a complete car.

When the car manufacturer fits an engine which it does not manufacture, the car shall be considered a hybrid and the name of the engine manufacturer shall be associated with that of the car manufacturer.

The name of the car manufacturer must always precede that of the engine manufacturer.

Should a hybrid car win a Championship Title, Cup or Trophy, this will be granted to the manufacturer of the car.

ARTICLE 1 : OBLIGATIONS

Group T1 cars must comply with the general prescriptions and with the safety equipment defined in Articles 282 and 283 respectively.

Any tank containing oil or fuel must be situated in the main structure of the vehicle.

Only fuel tanks conforming to the FT3 1999, FT3.5 or FT5 standards are allowed.

For cars the FIA technical passport of which is issued on or after 01.01.2008:

Any part of the fuel tank must be situated rearward of the rearmost seat.

An extension of the tank in front of the seat backs is authorised, provided it is below the level of the mounting points of the seats to the chassis. (National entries – for vehicles manufactured and assembled in India, the fuel tanks used need not meet the FIA requirements, provided – main & auxiliary are OE tanks made by or for an Indian car manufacturer

All fuel lines used must at least be an OE component used by an Indian manufacturer)

ARTICLE 2 : BODYWORK

2.1 Exterior

The materials are free.

A windscreen is optional.

However, should it be provided for, it must be of laminated glass regardless of its shape and surface.

If the windscreen is glued, it must be possible to remove the front doors or the windows of the front doors from inside the cockpit without using tools.

All parts of the bodywork must be carefully and fully finished, with no temporary or makeshift parts and no sharp corners.

National Entries – all vehicles must have a shielding (aluminium alloy of min 6mm or steel plate of 2-5 mm min thickness), fitted directly on to the chassis underneath any part of the fuel tank/tanks situated less than 200mm above the lowest point of the chassis

No part of the bodywork may present sharp edges or points.

The minimum radius of the angles and corners must not be less than 15 mm.

The bodywork of each car must be made from a hard, non-transparent material extending upwards to at least the centre of the steering wheel without being less than 42 cm above the plane determined by the fixation of the driver's seat, and providing protection against loose stones.

Seen in vertical projection, the bodywork shall cover at least 120° of the upper part of the wheels (situated above the wheel axis viewed from the side) and no mechanical component may be visible from above with the exception of shock absorbers, radiators, fans and spare wheels, including their anchorage points and attachments.

The bodywork must terminate at, or be extended rearwards to, at least the level of the upper edge of the rim.

All parts having an aerodynamic influence and all parts of the bodywork must be rigidly secured to the entirely sprung part of the car (chassis/body unit), must not have any degree of freedom, must be securely fixed and remain immobile in relation to this part when the car is in motion.

2.2 Maximum width

- For 4-wheel drive vehicles, the maximum width of the bodywork is 2.00 m without rear view mirrors.
- For 2-wheel drive vehicles, the maximum width of the bodywork is 2.20 m without rear view mirrors.

2.3 Interior

The axis of the pedal box must be situated behind or plumb with the axis of the front wheels.

The bodywork must be designed so as to provide the driver and possible co-drivers with comfort and safety.

No part of the bodywork may present sharp edges or points.

No mechanical part may protrude into the interior of the cockpit.

Inspection hatches are authorised in the structural bulkheads of the cockpit.

With the exception of the air filter, they must allow neither the installation nor the removal of mechanical parts.

The total surface of the inspection hatches is limited to 500 cm².

They must allow the cockpit to remain leakproof and flameproof.

Any equipment which could involve a risk must be protected or insulated and must not be situated in the cockpit.

The cars must have lateral openings allowing the exit of the driver and possible co-drivers.

The dimensions of these openings must be such that it is possible to fit into them a rectangle at least 50 cm wide and 50 cm high, measured vertically, the corners of which may be rounded with a maximum radius of 15 cm.

Doors with windows must have an opening made of transparent material and into which it is possible to fit a parallelogram with horizontal sides measuring at least 40 cm.

The height measured on the surface of the window perpendicularly to the horizontal sides must be at least 25 cm.

The angles may be rounded in accordance with a maximum radius of 5 cm. The measurements shall be taken across the chord of the arc.

Cars without side windows must be fitted with lateral protection nets which unfasten at the bottom.

The cockpit must be designed so as to allow an occupant to exit it from his normal position in the vehicle in 7 seconds through the door on his side and in 9 seconds through the door on the other side.

For the purpose of the above tests, the occupant must be wearing all his normal equipment, the seat belts must be fastened, the steering wheel must be in place in the most inconvenient position, and the doors must be closed.

These tests will be repeated for all the occupants of the car.

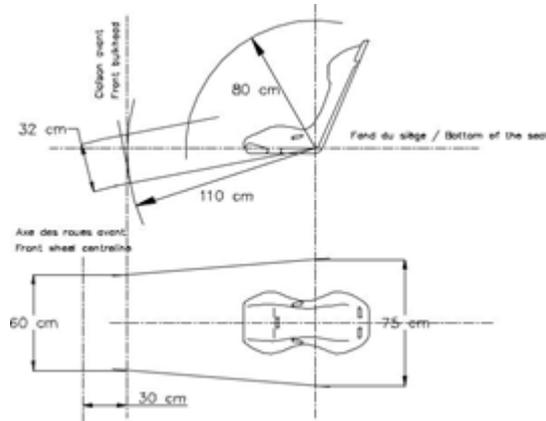
- Single-seater cars :

The location provided for the seat must have a minimum width of 45 cm maintained over the complete depth of the seat.

The minimum vertical protected height shall be 80 cm between the bottom of the flattened seat and a line joining (on the outside) the two main rollbars or the inside of the roof.

The minimum width of the footwell must be 25 cm, maintained to a height of 25 cm, measured horizontally and perpendicularly to the longitudinal axis of the chassis, plumb with the pedals.

For cars built after 31.12.96, the dimensions of the cockpit must comply with the minimum volume indicated on the Drawing 285-1.



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- Two-seater cars :

Each location provided for each seat must have a minimum width of 45 cm maintained over the complete depth of the seat. The distance between the lengthwise centre-lines of the two seats of the car must not be less than 50 cm. If the two centre-lines are not parallel, the measurement must be taken from the hollow of each of the two seats.

The minimum interior width for the front seats is 110 cm, maintained freely over at least 25 cm in height and 40 cm in length. The minimum vertical protected height is 80 cm between the bottom of the flattened seat and a line joining (on the outside) the two main rollbars or the inside of the roof. The minimum width of each footwell must be 25 cm, maintained to a height of 25 cm, measured horizontally and perpendicularly to the longitudinal axis of the chassis, plumb with the pedals.

ARTICLE 3 : MINIMUM WEIGHT

3.1 The cars are subjected to the following scale of minimum weights in relation to cylinder capacity :

Cylinder capacity in cm ³	Weight in	
	kg	Weight in kg
up to 1600	4X4 1150	4X2 860
over 1600 and up to 2000	1350	980
over 2000 and up to 2250	1500	1010
over 2250 and up to 2500	1600	1040
over 2500 and up to 2750	1637.5	1070
over 2750 and up to 3000	1675	1100
over 3000 and up to 3250	1712.5	1130
over 3250 and up to 3500	1750	1160
over 3500 and up to 3750	1787.5	1190
over 3750 and up to 4000	1825	1220
over 4000 and up to 4250	1862.5	1250
over 4250 and up to 4500	1900	1280
over 4500 and up to 4750	1937.5	1310
over 4750 and up to 5000	1975	1340
over 5000 and up to 5250	2012.5	1370
over 5250	2050	1400

National Entries – the minimum weight for cars manufactured in India should be the minimum weight specified in its homologation form (in the absence of which, that mentioned in the Owner’s Manual) plus the weight of Roll Cage)

3.2 This is the weight of the car without fuel at any time during the event, with two spare wheels. The engine cooling fluid and lubrication oil as well as the brake fluid must be at their normal levels. The other tanks for consumable liquids must be drained and the following elements must be removed from the car :

- occupants, their equipment and luggage;
- tools, portable jack and spare parts;
- survival equipment;
- navigation and communication equipment ;
- provisions;
- etc....

If three spare wheels are carried on board a 2-wheel drive vehicle which has front and rear complete wheels with different diameters, this vehicle may be weighed with its three spare wheels.

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 of affixing seals, and placed on the floor of the cockpit, visible and sealed by the Scrutineers.

ARTICLE 4 : ENGINE

4.1 General

See Article 282-3.

The number of supercharging stages must not be greater than 2.

National Entries – supercharged diesel engines require air restrictors and their installations has to follow FIA guidelines.

Supercharged petrol engines are permitted, provided they install an air restrictor (34mm for 2 valves per cylinder and 32mm for more than 2 valves per cylinder)

For 4-wheel drive cars, the engine must be ahead of the middle of the wheelbase (only for cars having an FIA technical passport drawn up after 31.12.2005).

4.1.1) Air restrictor :

National Entries – naturally aspirated engines do not require the fitment of air restrictors

All the air necessary for feeding the engine must pass through this restrictor, which must comply with Article 284-6.1, except for its internal diameter.

The restrictor for supercharged petrol engines must comply with Article 284-6.1 applicable to supercharged diesel engines, except for its internal diameter.

It is possible to use 2 air restrictors provided that the diameter normally used for one restrictor is divided by 1.4142.

4.1.1.1) Restrictor for petrol engines:

All petrol engines must be fitted with an air restrictor with a maximum internal diameter of :

2 valves per cylinder :	34 mm
more than 2 valves per cylinder :	32 mm

2 valves per cylinder rocker-arm engines (camshaft in the engine block) with a cylinder capacity greater than 5400 cm³:

34 mm if the weight is less than or equal to 1700 kg.

37.2 mm if the weight is more than 1700 kg.

For seeded drivers, if the car has a technical passport drawn up before 31.12.2006, the diameter of the restrictor for 2 valves per cylinder rocker-arm engines with a cylinder capacity greater than 5400 cm³ is 37.2 mm even if the weight of the car is less than or equal to 1700 kg.

For non-seeded drivers, the diameter of the restrictor for 2 valves per cylinder rocker-arm engines with a cylinder capacity greater than 5400 cm³ is 37.2 mm even if the weight of the car is less than or equal to 1700 kg.

4.1.1.2) Restrictor for supercharged diesel engines:

All supercharged diesel engines must be fitted with an air restrictor with a maximum internal diameter of 39 mm.

4.1.2) Compression ratio :

For petrol engines with a cylinder capacity less than or equal to 5250 cm³, the compression ratio is limited to a maximum value of 10.5/1 at any time.

For petrol engines with a cylinder capacity greater than 5250 cm³, the compression ratio is free.

4.1.3) Intake system :

Variable systems are forbidden.

The variable components concerned are only those situated inside the intake manifold as defined by article 251-2.3.4.

For petrol engines, the maximum volume between the restrictor and the gasket between the manifold and the cylinder head is set at 22 litres.

For supercharged diesel engines, this volume is set at 26 litres maximum.

4.1.4) Cooling of the charge

Heat exchangers must be of the air/air and/or air/water type.

Air/air exchangers must have a maximum total volume of the core V_{1max} of 22 dm³ (litres).

Air/water exchangers must have a maximum total volume of the core V_{2max} of 7 dm³ (litres).

In case of a combination of the two types of exchanger, the maximum total volume for the air/water exchanger is defined as follows:

total volume air/water = (1-R) x V_{2max} with

$R = \text{Total volume of the air/air exchanger} / V_{1\text{max}}$

The total volume of the core is given by its external dimensions (Length x Width x Thickness).

Any water spraying or injection system is prohibited.

4.1.5) Exhaust system

Variable systems are forbidden, except for supercharged diesel engines.

Particulate filters are forbidden for diesel engines.

4.2 Cylinder capacity and preparation

The engine and its preparation are free.

4.3 Lubrication

Radiator, oil/water exchanger, lines, thermostat, sump and pump strainers, are free.

The use of a system of lubrication by dry sump is authorised. The oil chamber together with the lines must not be located in the cockpit or in the baggage compartment.

All air openings must have the sole effect of inducing the necessary air for the crew or for the functioning or the cooling of mechanical parts, and must not have any other aerodynamic effect.

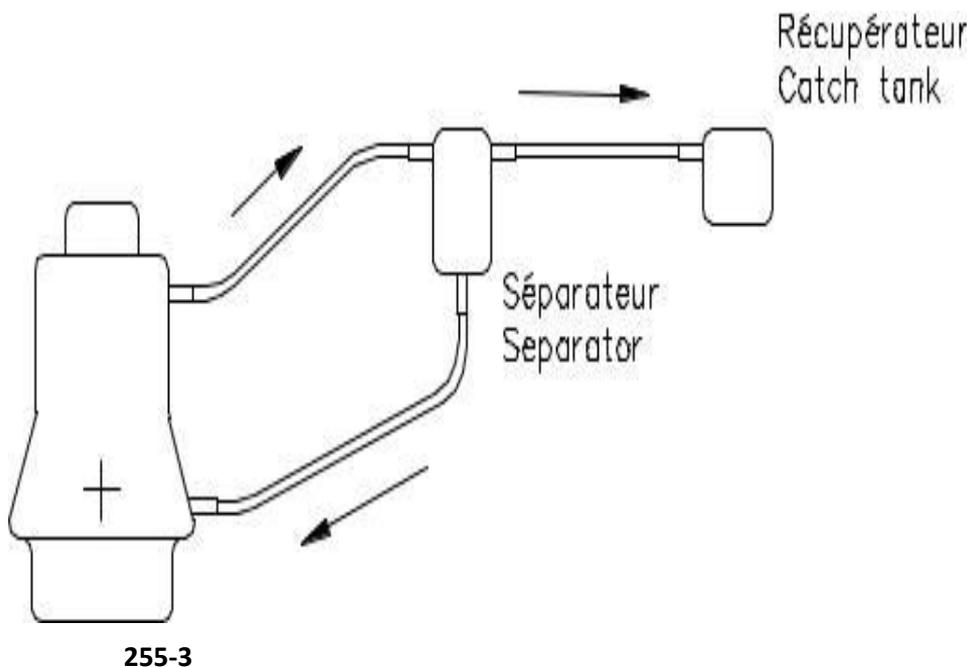
Oil pressure may be increased by changing the discharge valve spring.

If the lubrication system includes an open type sump breather, it must be equipped in such a way that the oil flows into a catch tank.

This must have a minimum capacity of 2 litres for cars with a cubic capacity equal to or below 2,000 cm³, and 3 litres for cars with a cubic capacity of over 2,000 cm³.

This container must be made either out of translucent plastic or include a transparent window.

An air/oil separator can be mounted outside the engine (maximum capacity 1 litre unless integrated into the catch tank), in accordance with the Drawing 255-3.



The oil must flow from the oil catch tank towards the engine by the force of gravity alone. The fitting of one or several ventilator for cooling the engine oil is authorised, provided that this does not have any aerodynamic effect.

4.4 Fuel cooling

The fitting of fuel coolers is authorised on the return circuit to the tank.

ARTICLE 5 : CHASSIS

Only tubular frame chassis in ferrous materials are authorised. The thickness of the tubes making the structural part of the chassis must not be less than 1.5 mm. The car must have a structure immediately behind the driver's seat which is wider and extends above his shoulders when he is seated normally in the car with his seat belts fastened.

ARTICLE 6: TRANSMISSION

The transmission system must be activated and controlled exclusively by the driver.

6.1 Gearbox and transfer box

The design of the gearbox is free. It is restricted to 6 gears, without the possibility of changing by any other means in the transmission chain. If the gearbox has 5 gears or less, it is possible to add an additional speed-reducing gear by means of a transfer box. "Sequential" type gearboxes are allowed on condition that the control is exclusively mechanical and that no assistance is used. Only automatic boxes using a torque converter are authorised. Only an engine ignition and/or injection cut-off system activated mechanically by the gear change is allowed.

6.2 Final drive, differential.

Free but the differentials must be of the single stage epicyclic type.

The self-locking devices must be entirely mechanical (with plates) and/or visco coupling. The setting of their functioning parameters must exclusively be made with the use of tools when the car is immobilised.

The self-locking devices may have an actuator allowing only the locking of the differential(s).

6.3 Transmission shafts

Transmission shafts are free.

6.4 Lubrication

An additional lubrication and oil cooling device is allowed (circulation pump, radiator, and air intakes) in the same conditions as for Article 285-4.3.

ARTICLE 7 : SUSPENSION

7.1 General

The suspension is free but the use of active suspension is forbidden (any system which allows control of flexibility, damping, height and/or attitude of the suspension when the car is in motion).

7.2 Shock absorbers

The adjustment of the shock absorbers from the cockpit is forbidden.

It must only be possible when the car is immobilised, and the adjustment device must be situated on the shock absorber or its gas reserve.

Any connection between dampers is forbidden.

7.3 Anti-roll bars

Only one anti-roll bar per axle is permitted.

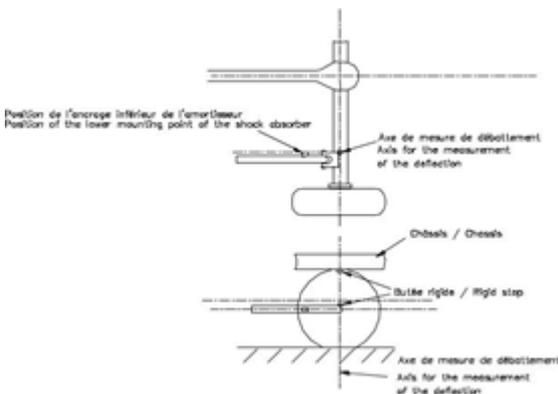
The anti-roll bar systems must be exclusively mechanical with the exception of an actuator allowing only the activation or deactivation of the anti-roll bar.

Any connections between front and rear anti-roll bars are forbidden.

7.4 Suspension travel

Vertical suspension travel for 4-wheel drive vehicles is limited to :

- 300 mm for a "banjo" type rigid axle; the axis of the differential outlet merging with the centre line of the wheels (see Drawing 285-2).
- 250 mm for the other types of transmission.
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285-2

-for suspensions with independent wheels : The vehicle must be on stands with the spring/shock absorber units dismantled. The wheel must be moved from steel bump stop to steel bump stop. The travel is the average of the vertical displacements of two points of the median plane of the wheel diametrically opposed on a vertical plane.

- for suspension with rigid axles : The vehicle must be on stands with the spring/shock absorbers units dismantled and with the rigid axle prevented from moving downward by travel limitation straps or the lower bump stop. The wheels must be moved simultaneously from the upper steel bump stop to the lower The travel is the vertical displacement of the wheels steel bump stop

ARTICLE 8 : WHEELS AND TYRES

Complete wheels may be housed within the bodywork, and must have a maximum diameter of 940 mm (37 inches) for two-wheel drive vehicles and 810 mm (31.8 inches) for four-wheel drive vehicles.

The diameter must be measured on the new tyre specified by the manufacturer.
The use of tyres intended for motor cycles is forbidden.

The fitting of intermediary parts between the wheels and the tyres is forbidden.
The wheels do not have to be of the same diameter.

Should the wheel be fixed using a central nut, a safety spring must be in place on the nut throughout the duration of the event and must be replaced after every wheel change. The springs must be painted "Dayglo" red. Spare springs must be available at all times.

The use of any system for inflating / deflating the tyres when the car is in motion is forbidden, except for two-wheel drive vehicles.

For four-wheel drive vehicles, the inflating / deflating operation must only be done while the car is stopped.

The only system authorised is a system connected to the wheels through a flexible tube during the operation and connected to one valve per wheel.

In order to adjust the tyre pressure, any air going in or out must pass through a conventional type of valve coming from a series light utility vehicle and having a VG5 type screw thread.

Only one valve is allowed per wheel and it must be fixed to the rim by one hole only, with a maximum diameter of 12 mm, positioned on the outer face of the rim.

The tube and its inflating manometer may be situated in the cockpit on condition that the operating pressure is lower than 10 bars.

The compressed air bottles feeding the system:

- must not have a capacity greater than 15 litres each,
- must have mountings able to withstand a deceleration of 25 g,
- must not be situated in the cockpit.

It is recommended that these bottles be positioned transversally in the vehicle and secured by at least two metal straps.

- For seeded drivers only:

Only wheels made from cast aluminium alloy and weighing more than 13 kg are authorised for 4-wheel drive cars.

ARTICLE 9: BRAKING SYSTEM

The braking system is free, provided that:

- it is exclusively activated and controlled by the driver,
- it includes at least two independent circuits operated by the same pedal (between the brake pedal and the calipers, the two circuits must be separately identifiable, without any interconnection other than the mechanical braking force balancing device),
- the pressure is identical on the wheels of the same axle, with the exception of the pressure generated by the handbrake.

ARTICLE 10 : MISCELLANEOUS

10.1 Special cases

A 4-wheel drive series production vehicle with a weight of between 2500 and 3500 kg and a width of over 2.00 m may be accepted in T1, if the manufacturer sends a written request to the FIA.

In a Cross-Country event, the weight of this vehicle must not be less than 2800 kg, and the vehicle may retain its original width.

10.2 Prohibited sensors

Any radar system, vehicle speed measurement system (except pulse ring on the gearbox), gyroscope, accelerometer, load sensor (except sensor for engine ignition and/or injection cut-off), or restraining gauge is forbidden.

Two wheel speed sensors are authorised, only on non-driven wheels.

National Entries

1. All engine oil lubricating lines and hydraulic lines need to be OE from an Indian manufacturer or BIS Certified
2. It is not mandatory to install FIA compliant fire extinguishing systems; BIS certified Manual Dry Powder extinguishers are permitted
3. Window nets are not mandatory BUT recommended
4. T1 cars may have a chassis comprising of either a tubular frame or monocoque shell
5. T1 cars need not comply to the dimension stipulations in the FIA – CCR Regulations, provided it conforms to its FMSCI Homologation Form or its relevant Owner's manual.
6. All fuel pumps installed in the car must be from a manufacturer's production catalogue
7. T1 4x4 vehicles; wheel rims need not necessarily be made of aluminum, or weigh more than 13kgs, provided they comply with the vehicle's Homologation Form or are OE units manufactured by an Indian Car / wheel manufacturer