

FMSCI
SPECIFIC REGULATIONS
FOR SERIES CROSS COUNTRY CARS (GROUP T2)
2019
(FMSCI 2019 – APPENDIX J – ARTICLE 284)

ART. 1 DEFINITION

Series production Cross-Country cars.

ART. 2 HOMOLOGATION

At least 1000 identical units must have been produced in 12 consecutive months and homologated by the FIA / FMSCI in Series Cross Country Cars (Group T2).

ART. 3 NUMBER OF SEATS

Cars must have room to accommodate at least two persons.

ART. 4 MODIFICATIONS AND ADJUNCTIONS ALLOWED OR OBLIGATORY

All the modifications which are not allowed by the present regulations or by Article 282, or rendered mandatory by Article 283, are expressly forbidden.

The only work which may be carried out on the car is that necessary for its normal servicing or for the replacement of parts worn through use or accident. The limits of the modifications and fittings allowed are specified hereinafter. Apart from these, any part worn through use or accident can only be replaced by an original part identical to the damaged one.

The cars must be strictly series production models identifiable by the homologation form data.

ART. 5 MINIMUM WEIGHT

Cars must have at least the weight featuring on the homologation form / owner's manual. The weight of the Roll Cage must be added.

This is the weight of the car without fuel at any time during the competition, with one spare wheel.

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

Additional headlights which do not feature on the homologation form

Tools, portable jack and spare parts Survival equipment

Navigation and communication equipment Provisions etc.

No ballast of any kind is authorised on Series Cross-Country cars (Group T2).

ART. 6**6.1 Engine**

FOR NATIONAL ENTRIES- SUPERCHARGED PETROL ENGINES ARE PERMITTED PROVIDED THEY INSTALL AN AIR RESTRICTOR (34 MM FOR 2 VALVES/ CYLINDER AND 32MM FOR MORE THAN 2 VALVES PER CYLINDER)

Supercharged petrol engines are prohibited.

The accelerator cable may be replaced or doubled by another one regardless of whether it comes from the manufacturer or not.

Engine and gearbox mountings

They must be original or homologated.

If original, the material of the elastic part is free.

Ignition

Make and type of plugs are free as are rev-limiters and high tension cables.

The electronic control unit and the ignition components in the electronic control unit are free; nevertheless the system must be entirely interchangeable with the original unit.

The original loom must be kept and cannot be modified.

Sensors and actuators on the input side must be standard, as must their function.

No sensor may be added, even for the purpose of data recording.

It is prohibited to add a switch in the original wiring loom between the electronic control unit and a sensor and/or actuator.

In the case of a model fitted with a multiplexed electric circuit, the use of a loom together with an electronic control unit homologated

Use of a loom together with an electronic control unit homologated in Option Variant is permitted.

Any data recording system other than the engine electronic control unit is forbidden.

Cooling circuits

The radiator containing the coolant is free, as is the type of thermostat which may be removed. The original location and attachment points of the series production radiator must be conserved.

The addition of an electric fan is permitted provided that it is fitted on any series vehicle and is commonly on sale.

This also applies for the engine lubrication system, the transmission lubrication system and the hydraulic power-steering system

Injection

The original system must be retained.

Components of the injection system situated downstream of the air-flow measuring device, and which control the quantity of petrol entering the combustion chamber, may be modified but not replaced, provided that they do not have any influence over the quantity of air admitted.

The electronic control unit for the injection is free.

Inputs to the electronic control unit (sensors, actuators, etc.), including their functions, must remain as standard.

It is prohibited to add a switch in the original wiring loom between the electronic control unit and a sensor and/or actuator.

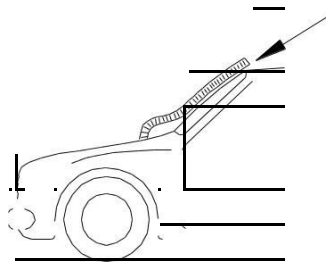
Outputs from the electronic control unit must retain their original functions in accordance with the homologation form.

In the case of a model fitted with a multiplexed electric circuit, the use of a loom together with an electronic control unit homologated in Option Variant is permitted.

It is necessary to be certain that the sensors used by a vehicle fitted with a multiplexed electric circuit can be retained with the homologated loom

The injectors may be modified or replaced in order to modify their flow rate, but without modifying their operating principle and their mountings.

The injector rail may be replaced with another of free design but fitted with threaded connectors for connecting the lines and the fuel pressure regulator, provided that the mounting of the injectors is identical to the original.



255-13

Intake

Restrictor (normally aspirated petrol engines)

FOR NATIONAL ENTRIES- NATURALLY ASPIRATED ENGINES DO NOT REQUIRE FITTMENT OF AIR RESTRICTORS (PETROL ENGINES).

All normally aspirated petrol engines must be equipped with an air restrictor

For the sole purpose of attaching this obligatory restrictor, the tube between the filter and the butterfly valve may be modified.

It must not be possible to detach the restrictor without using tools.

For engines with more than two valves per cylinder, the air intake system must be fitted with an air restrictor at least 3 mm long and

with a maximum internal (d) diameter of :

32 mm for vehicles up to 4000 cm³

35 mm for vehicles up to 6000 cm³

38 mm for vehicles over 6000 cm³

For engines with two valves per cylinder and rotary valve engines,

apply the following formulae :

$$D_{2V} = [(D - 1) \times 1.066] + 1$$

the result being rounded up to the nearest 0.1 mm.

$$D_{\text{rotary}} = [(D - 1) \times 1.10] + 1$$

the result being rounded up to the nearest 0.1 mm.

This diameter must be complied with, regardless of the temperature conditions.

All the air necessary for feeding the engine must pass through this restrictor, which must be made of metal or of a metal alloy.

This restrictor must be situated between the air filtering system and the intake manifold.

The restrictor must be made from a single material and may be pierced solely for the purpose of mounting and sealing, which must

be carried out between the mounting screws.

It must be visible, easy to inspect without the use of tools and easy to seal.

The tube between the air restrictor and the engine must be airtight so that if this restrictor becomes totally blocked, the engine is stifled.

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

The external diameter of the restrictor at its narrowest point must be less than $(d) + 6$ mm, and must be maintained over a length of 5 mm to each side.

Restrictor (Supercharged diesel engine)

All supercharged diesel engines must be fitted with a restrictor fixed to the compressor housing.

All the air necessary for feeding the engine must pass through this restrictor, which must respect the following :

The maximum internal diameter (d) of the restrictor is :

39 mm for engines up to 5000 cm³

43 mm for engines over 5000 cm³ and up to 6000 cm³ 46 mm for engines over 6000 cm³

Note:

See Article 282-3.2 for the calculation of the cylinder capacity.

This diameter must be maintained for a minimum length of 3 mm measured downstream of a plane perpendicular to the rotational axis situated at a maximum of 50 mm upstream of a plane passing through the most upstream extremities of the wheel blades (see Drawing 254-4).

This diameter must be complied with, regardless of the temperature conditions.

The external diameter of the restrictor at its narrowest point must be less than $(d)+6$ mm, and must be maintained over a length of 5 mm to each side.

The mounting of the restrictor onto the turbocharger must be carried out in such a way that two screws have to be entirely removed from the body of the compressor, or from the restrictor, in order to detach the restrictor from the compressor. Attachment by means of a needle screw is not authorised.

For the installation of this restrictor, it is permitted to remove material from the compressor housing, and to add it, for the sole purpose of attaching the restrictor onto the compressor housing.

The heads of the screws must be pierced so that they can be sealed.

The restrictor must be made from a single material and may be pierced solely for the purpose of mounting and sealing, which must be carried out between the mounting screws, between the restrictor (or the restrictor/compressor housing attachment), the compressor housing (or the housing/flange attachment) and the turbine housing (or the housing/flange attachment) (see Drawing 254-4).

It must be visible, easy to inspect without the use of tools and easy to seal.

A restrictor, firmly secured (not detachable) to the compressor housing, is allowed. In that case, the external diameter at the narrowest point is free.

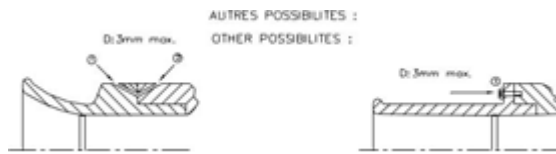
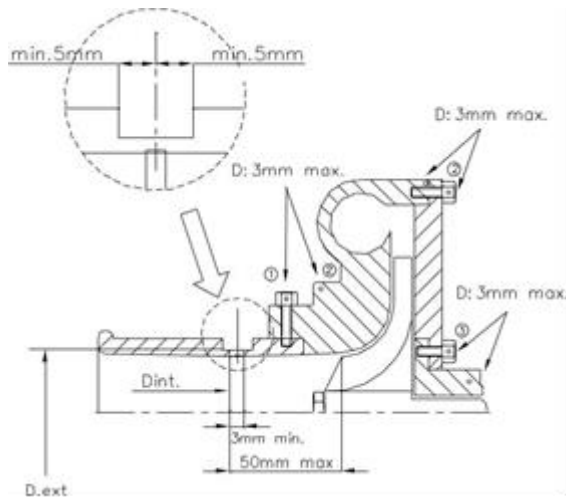
It is possible to use 2 air restrictors provided that the diameter normally used for one restrictor is divided by 1.4142.

Timing

The springs and play of the valves are free, but the camshafts (including the profile of the cams) must remain as in the series.

The number and the operating principle of the feed pumps are free

254-4

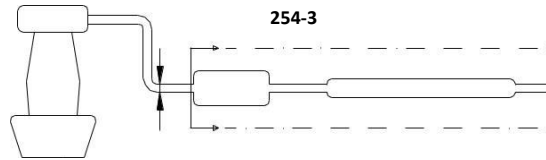


- ① trou pour bride ou bride/carter de compression
hole for restrictor/compressor housing
- ② pour carter de compression ou carter/flasque
- ③ trou pour carter central ou carter/flasque

ExhaustIt is possible:

Either to remove the inside of the original silencer

Or to modify the exhaust from the first silencer to the exit (Drawing 254-3), the maximum dimensions of the duct being those of the pipe situated upstream of the first silencer. The exit must be situated either to the rear or to the side.



Should two inlets exist in the first silencer, the section of the modified duct must be less than or equal to the total of the two original sections.

These liberties must not entail any bodywork modifications and must respect the laws of the country in which the competition is run with regard to noise levels.

If an exhaust silencer is added, it must be of the original type and must contain noise-absorbing material. Additional parts for the mounting of the exhaust are authorised.

Catalytic exhaust

If a model of car is homologated in two versions (catalytic exhaust and other), cars must be in conformity with one or the other version, with no mix between the two.

The catalytic converter is considered as a silencer and may be moved.

If it is fixed directly onto the manifold, the catalyst may be replaced with a conical part of the same length and with the same inlet and outlet diameters.

Behind this part, the exhaust is free with a tube diameter no greater than that of the outlet from the catalyst.

If the catalytic converter is an integral part of the exhaust manifold, it is possible to remove only the internal part of the catalytic converter.

Cruising speed controller

This controller may be disconnected.

Soundproofing panels

These panels may be removed as well as engine shields made of plastic material, the purpose of which is to hide mechanical components in the engine compartment, and having a solely aesthetic function, while respecting the minimum weight.

Air conditioning

It is possible to remove the air conditioning system from a vehicle homologated with air conditioning while respecting the minimum weight.

6.2 Transmission

6.2.1 Clutch

The disc is free, with the exception of the number and diameter.

6.2.2 Gearbox

The joints of the gearbox linkage are free.

6.2.3 Differentials

Differential locking/unlocking automatic systems are authorised on condition that they are homologated as Production Variant (VP) and that they are not modified

6.3 Suspension

6.3.1 It is possible to change the material of the suspension wishbones for steel, since the weight of the new wishbone is greater than the weight of the original wishbone, all other things being equal.

The reinforcing of the suspension and its anchorage points by the addition of material is allowed.

The suspension reinforcements must not allow 2 separate parts to be joined together to form one.

The shape of the reinforcing part/material must follow the surface of the part to be reinforced, having a shape similar to it and the following maximum thickness measured from the surface of the original part :

4 mm for steel parts

12mm for aluminium parts .

For bodywork parts, the reinforcing part / material must be on the area not visible from the outside.

Stiffening ribs are allowed but the making of hollow sections is forbidden.

The reinforcing part / material must not have any other function than that of a reinforcement.

In the case of oil-pneumatic suspension, the spheres may be changed as regards their dimensions, shape and material, but not their number. A tap, adjustable from the outside of the car, may be fitted on the spheres

6.3.2 Rigid axle

If a rigid axle is used, the original parts may be strengthened on the outside in such a way that the original part can be still recognised

6.3.3 Straps

Suspension travel straps are allowed at the front and rear

6.3.4 Springs

Coil springs

The length is free, as is the number of coils, the wire diameter, the external diameter, the type of spring (progressive or not), the external diameter and the form of the spring seats.

Pneumatic or oil-pneumatic springs may be replaced with coil springs, provided that the transformation is homologated in VO

Leaf spring

The length, width, thickness and vertical curvature are free. The fitting of shackle protection pads is strongly recommended. The number of leaves is free.

Torsion bars

The diameter is free

6.3.5 Shock absorbers

Free, provided that their type (telescopic, arm, etc.) and their working principle (hydraulic, friction, mixed, etc.) remain unchanged.

They must have no other function than that of shock absorber.

The checking of the operating principle of the shock absorbers must be carried out as follows :

Once the springs and/or the torsion bars are removed, the vehicle must sink down to the bump stops in less than 5 minutes.

Nevertheless, if a replacement shock absorber is manufactured with an operating principle different from that of the series one, it requires the approval of the FIA/ FMSCI.

The number of shock absorbers is limited to two per wheel.

No other part, apart from those whose only function is to permit the fitting of an additional shock absorber, may be added to or removed from the suspension.

In the case of a vehicle which has only one shock absorber per wheel, the mounting of this shock absorber is free provided that no part other than those exclusively allowing the attachment can be added to and/or removed from the suspension.

The fluid tanks for the shock absorbers may be attached in the wheel arches as well as to the chassis.

A local modification of the shell or chassis is authorised if its sole purpose is to allow the mounting of the shock absorber; the modification must not extend more than 320 mm around the new fixation point on the shell side.

6.3.6 McPherson Suspension

If, in order to change the damping element of a McPherson suspension, or a suspension operating in an identical manner, it is necessary to replace the entire McPherson strut, the replacement parts must be mechanically equivalent to the original ones and have the same mounting points

For McPherson suspensions, the shape of the spring seats is free.

Their material is free.

6.4 Wheels and tyres

. The wheels are free, respecting the homologated diameter (Article 801.a) and width (Article 801.b) which are considered as maxima.

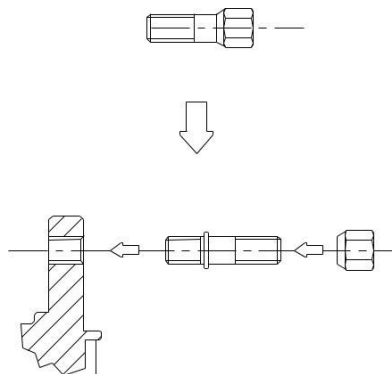
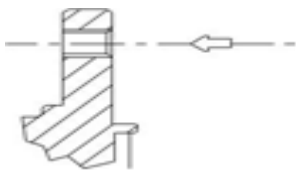
The complete wheels must be covered by the fenders.

Tyres are free provided that they can be mounted on these wheels, but studded tyres and motorcycle tyres are forbidden.

The spare wheel may be brought inside the driving compartment, on condition that it is firmly secured and that it is not installed in the space reserved for the occupants.

Wheel fixations by bolts may be changed to fixations by pins and nuts provided that the number of attachment points and the diameter of the threaded parts as indicated on the Drawing 254-1 are respected.

254-1



6.5 Braking system

Discs and callipers must be original or homologated in Option Variant (VO).

Brake linings are free, as are their mountings (riveted, bonded, etc.) provided that the contact surface of the brakes is not increased.

Protection plates may be dismantled or bent.

In the case of a car fitted with servo-assisted brakes or an anti-locking device, this device may be disconnected. The same applies for anti-lock braking systems.

Brake lines may be changed for aviation type lines.

In the case of a vehicle which has a homologated antilock braking system, this system may be removed in its entirety from the competition vehicle.

The mechanical handbrake may be replaced with a hydraulic system, but a diagonal brake circuit (X shape) or the original system is mandatory.

The parking brake function must be retained.

It is permitted to modify the position of the hydraulic handbrake system, provided that it remains in the location homologated (on the central tunnel ...).

6.6 Bodywork

6.6.1 Exterior

Hubcaps must be removed.

Plastic sound-proofing parts may be completely or partly removed from the inner wheel arches.

Protective headlight covers may be fitted provided that their only function is to cover the glass, and that they have no influence on the car's aerodynamics.

The fitting of underbody protections is recommended but only authorised provided that these really are protections which respect the ground clearance, which are removable and which are designed exclusively and specifically in order to protect the following parts :

engine, radiator, suspension, gearbox, tank, transmission, exhaust.

A cow-catcher is recommended, in addition to the bumper. This protective grill must be independent of the structure of the car and must not reinforce it or contribute to its rigidification. This cow-catcher must be made up of tubes and its mountings are situated on the original bumpers. It must have no significant function other than that of protection and mounting of additional headlights.

The side and rear windows situated behind the crew may be made from non-transparent material or replaced by transparent material, with a minimum thickness of 3 mm.

The profile of the bodywork must not be modified as a result of these freedoms. Their fixation is free, the mechanisms may be removed, several panes filling an opening may be replaced by just one panel, and the same applies for the windows of the side doors.

The glass panel of a sun roof may be replaced by a metal sheet with a minimum thickness of 1.5 mm, with additional attachments if necessary.

Any locking system may be used for the cap of the petrol tank.

If the original spare wheel support constitutes a hazard on the outside of the bodywork and if this wheel is brought inside the cockpit (see Article 6.4), it may be removed. The fitting of external rear-view mirrors is permitted, as is the changing of the windscreen wiper blades, front and rear.

The rear window wiper system may be removed

6.6.2 Passenger space

All unnecessary parts of the original safety belt systems may be removed.

All accessories which have no effect on the vehicle's behaviour are allowed without restrictions, such as those concerning the aesthetics or interior comfort (lighting, heating, etc.), on the express condition that they do not influence, even on a secondary manner, the efficiency of the engine, steering, strength, transmission, braking, or road-holding.

All the controls must be those provided by the manufacturer and they must retain their original function but they can be worked on to make them more accessible or more easily usable ; for example, the addition of an extension to the handbrake lever, of an additional flange to the brake pedal, etc.

The following is allowed in particular :

1. Additional measuring instruments, counters, etc. may be freely, provided that their fitting is not likely to create any danger.
2. The horn may be changed. Another one, possibly for the passenger's use, may be added.
3. The mechanism of the handbrake lever may be adapted in order to obtain instant unlocking (fly-off handbrake).
4. The rear seats may be removed on condition that a liquid-tight bulkhead separates the cockpit from the engine compartment. and/or the fuel tank.
5. Additional compartments may be added to the glove compartment as well as additional pockets to the doors
6. Steering wheel is free.
7. It is authorised to replace the electric windows by manually- operated windows

8. Carpets are free and may thus be removed
9. . Soundproofing materials and trim may be removed
10. Door panels may be made from metal sheeting at least 0.5 mm thick, from carbon fibre at least 1 mm thick or from another solid and non-combustible material at least 2 mm thick.

6.6.3 Reinforcements

Strengthening of the suspended parts of the chassis and bodywork through the addition of parts and/or material is allowed under the following conditions :

The shape of the reinforcing part/material must follow the surface of the part to be reinforced, having a shape similar to it and the following maximum thickness measured from the surface of the original part :

4 mm for steel parts

12 mm for aluminium alloy parts.

For bodywork parts, the reinforcing part / material must be on the area not visible from the outside.

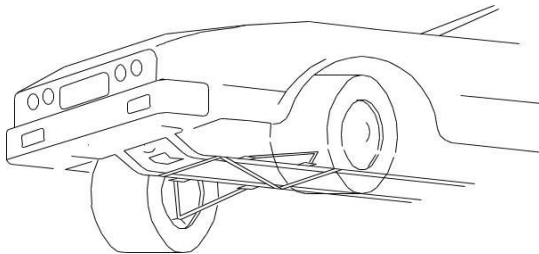
Stiffening ribs are allowed but the making of hollow sections is forbidden.

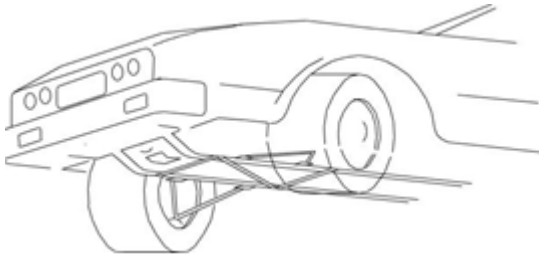
The reinforcing part / material must not have any other function than that of a reinforcement.

It is permitted to fit reinforcement bars, on condition that they are removable and are bolted onto the attachment points of the suspension to the bodyshell or onto the suspension spring mounts. A hole may also be bored in the upper suspension trim to fit these rods.

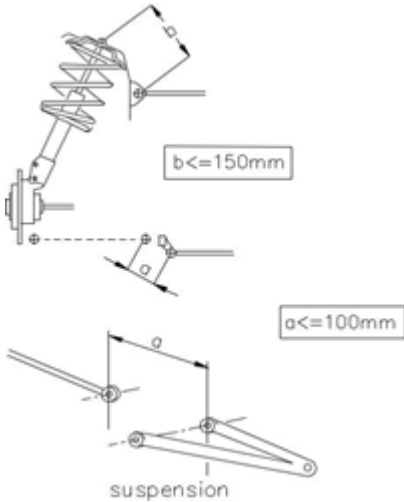
The distance between a suspension attachment point and an anchorage point of the bar cannot be more than 100 mm, unless the bar is a transverse strut homologated with the safety cage, or unless it is an upper bar attached to a McPherson suspension or similar.

In the latter case, the maximum distance between an anchorage point of the bar and the upper articulation point must be 150 mm (Drawings 255-2 and 255-4).





255-2



255-4

Apart from these points, this bar must not be mounted on the body shell or the mechanical parts.

6.6.4 When the spare wheel is originally placed in a closed housing and when this wheel is changed for a wider one from the running gear (see Article 6.4), situated in this space, it is possible to remove from the cover of the location of the wheel the surface induced by the diameter of the new wheel (Drawing 254-2).

6.7 Electrical system
Battery

The make, capacity, and battery cables are free. The tension and the site of the battery must be retained

Generator

May be replaced by a more powerful one. A dynamo may not be replaced by an alternator and vice-versa.

Lighting system

Additional headlights including the corresponding relays are allowed, on condition that the total does not exceed eight (tail and parking lights not included) and provided that this is accepted by the laws of the country. They may not be housed within the bodywork.

Headlights and other exterior lights must always exist in pairs. The original headlights can be made inoperative and covered with adhesive tape. They can be replaced by other headlights, in compliance with this article. Fuses may be added to the electrical system.

6.8 Fuel circuit

FOR NATIONAL ENTRIES-

- 1) FUEL TANKS (MAIN AND AUXILIARY) NEED NOT BE FIA HOMOLOGATED OR FT 3 AND 5 COMPLAINT, PROVIDED THEY ARE FROM AN INDIAN CAR /FUEL TANK MANUFACTURER (OE SUPPLIER).
- 2) IT IS NOT MANDATORY TO FOLLOW FIA REGULATIONS ON FUEL LINES , PROVIDED THE ONES USED ARE (OE) FROM AN INDIAN CAR MANUFACTURER
- 3) THE NON RETURN VALVE ON THE FUEL FILLER NECK NEED NOT BE FIA HOMOLOGATED BUT AN OE FILLER NECK CAP FROM AN INDIAN CAR MANUFACTURER.
- 4) ALL FUEL PUMPS INSTALLED , MUST BE FROM A CAR MANUFACTURES PRODUCTION CATALOGUE.
- 5) AN ADDITIONAL FUEL TANK MUST HAVE A CAPACITY EXCEEDIND 6 LITRES.

It is compulsory to fit an FT3-1999, FT3.5-1999 or FT5-1999 tank and its accessories (in conformity with the various articles of the regulations) replacing the original tank.

In this case a panel may be used to close off the opening left by the removal of the original tank.

The number of tanks is free.

The new lines and accessories equipping the FT3-1999, FT3.5-1999

or FT5-1999 tank must be in conformity with Article 283-3.2.

6.9 Jack

The jack is free and the jacking points may be changed for others which have no other function.

Additional regulations for National entries

- 1) All engine lubricating lines and hydraulic lines need to be OE from an Indian manufacturer or BIS certified.
- 2) A BIS certified Fire Extinguisher as per FMSCI specification is permitted
- 3) Safety Roll cages must confirm to the specifications laid down by the FIA OR FMSCI.
- 4) Roll cage padding should be fire proof, it is not mandatory to have FIA compliant roll cage padding.
- 5) Window nets are recommended.
- 6) All lights of the vehicle have to conform to the Indian motor vehicle act.
- 7) It is not mandatory to install two electrical cut-off switches on either side of the windshield base, a single unit easily accessible from outside will suffice.
- 8) It is not mandatory to install an audible warning device in the competing car.
- 9) ALL VEHICLES MUST HAVE A SHIELDING (ALLMINIUM ALLOY OR STEEL PLATE OF 6MM THICKNESS) FITTED DIRECTLY ONTO THE CHASSIS UNDERNEATH ANY PART OF THR FUEL TANK/TANKS SITUATED LESS THAN 200 MM ABOVE THE LOWEST POINT AF THE CHASSIS