



The Federation of Motor Sports Clubs of India

**AUTO  
GYMKHANA  
TECHNICAL  
REGULATION**

**2019**

**Art: 1**

**1.1: ELIGIBLE CARS**

All cars produced in series and regularly on sale through a recognised commercial network in India are eligible. It's up to the entrant OR the Competitor to supply the elements necessary for proving the eligibility of a model".

**1.4: TURBO CHARGING**

A multiplication factor of 1.7 for petrol engines and 1.5 for Diesel engines will be applied.

**1.5: FUEL.**

Free, should be sourced from a legal government authorised distribution outlet.

**1.6: MODIFICATIONS ALLOWED AND/OR OBLIGATORY**

All modifications which are not explicitly allowed by the present regulations are forbidden. An authorised modification may not in the process entail a non-authorized modification

**1,7: HELMETS AND GLOVES-** A helmet having a minimum specification of an BIS or ISI is mandatory. Driving gloves are mandatory.



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## Art.2

### GROUP | STOCK

2 .Modifications not mentioned below are strictly not authorised :

**2.1a:** Spark plugs and HT cables are free.

**2.1b:** Exhaust system should as provided by the manufacturer

**2.1c:** Lubricants are free.

**2.1d:** OE Body kits, front lip spoilers, Boot/roof spoilers are allowed

**2.1e:** Wheel Rim, size free. Provided they are made of steel or Aluminium.

The wheel tyre combination should not protrude beyond the perimeter of the car.

**2.1f:** Steering wheel is free but spinner knobs are not allowed.

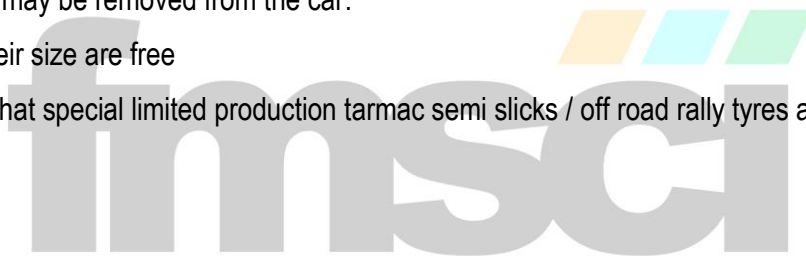
**2.1g:** Gear knob is free but the lever is not.

**2.1h:** Accelerator/brake and clutch pedal covers are free.

**2.1i:** Spare wheel may be removed from the car.

**2.1j:** Tyres and their size are free

While respecting that special limited production tarmac semi slicks / off road rally tyres are not allowed.



## Art.4 **The Federation of Motor Sports Clubs of India**

### GROUP | UNRESTRICTED OPEN

Vehicles conforming to modifications in Group STOCK, ~~Group MODIFIED~~ along with the modifications listed below will be eligible to participate only in the unrestricted Open Class.

#### **4.1: ENGINE – General**

The engine is free but should be of Indian origin from a series production Indian car manufacturer.

Provided an engine having a maximum of up to, 420 cc above the original cars specification, will be allowed (Eg: an Esteem having had an engine with a capacity of 1298cc, can upgrade to an engine of 1710 cc from the same manufacturer)

The cylinder head and engine block may come from different cars. (Same manufacturer)

Only automobile engines are allowed.

The ECU is free. Custom made wiring harness is permitted.

The number of cylinders should be the same as what is allowed in the body shell they use.

For eg: If you want to swap an engine in a Volkswagon polo which has 4 cylinders, only another 4 cylinder engine will be allowed in this body shell.

Engine speed is free.

**4.1.1: ENGINE BLOCK-** Free, so long as it respects Art 4.1

**4.1.2: CYLINDER HEAD-** Free, so long as it respects Art 4.1

**4.1.3: CAMSHAFT & CRANKSHAFT-** Free.

**4.1.4: TAPPET/ ROCKER / CAM FOLLOWER:-** The diameter of the tappets and the shape of the tappets and rocker arms are free.

**4.1.5: VALVES-** Free.

**4.1.6: WATER PUMP-** Free.

**4.1.7: OIL PUMP**

Free. The lubrication system, internal and external is free. Dry sump along with all its plumbing is free and permitted.

Lubrication by dry sump is allowed.

In this case, the new oil pump must be external to the engine block. It is possible to improve the oil circulation internally as well as between the cylinder head and the oil sump by means of lines internal/external to the engine.

**4.1.8: FLYWHEEL-** Free.

**4.1.9: ENGINE MOUNTING-** Free along with its numbers

**4.1.10: IGNITION SYSTEM-**Only one spark plug per cylinder is permitted. Ignition is only permitted by means of not more than a single ignition coil per cylinder.

**4.1.11: INJECTION SYSTEM-**The injection system is of free design. A combination of direct injection and port injection systems is allowed.

Internal and/or external spraying or injection of water or any substance whatsoever is forbidden (other than fuel for the normal purpose of combustion in the engine). Only solenoid injectors are allowed.

**4.1.12: INTAKE MANIFOLD.**-Custom made intake manifolds are allowed. ITB manifolds are permitted.

Throttle bodies shall only function, mechanically or electrically.

All air entering the engine must imperatively pass through the throttle opening or the opening of the air injection system.

The use of composite material (including carbon fibre) is authorised with the exception of the throttle unit body.

Intake manifolds with variable geometry are prohibited.

The intake manifold must be fitted with:

Either multiple valve throttle unit mechanically controlled

Or single-valve single throttle unit which may be mechanically or electrically controlled. If it is electrically controlled, the throttle unit must come from a commercial catalogue.

All air entering the engine must imperatively pass through the throttle opening or the opening of the air injection system.

**4.1.13: TURBO CHARGER**-In case of after market turbocharging in group Unrestricted Open, The turbocharger must be single turbocharger.

**4.1.14: WASTE GATE**-Free

In case of after market turbocharging in group Unrestricted Open, Free but Electromagnetic or hydraulic actuation is forbidden.

**4.1.15: INTERCOOLER**-Free

The intercooler must be of the air/air type: but must be within the bodywork of the car

The intercooler is free but with the following limitations:

It must be mounted in the engine compartment

The interchanger core must have a maximum of six flat faces.

**4.1.16: ELECTRICAL SYSTEM**-The make, model number, and size of the battery may be changed but not its voltage. Relocation of the battery is permitted but not into the passenger compartment.

The addition of electrical grounding cables and associated distribution blocks/terminals is permitted.

A cut-off system is mandatory. (Circuit breaker)

**4.1.17: LUBRICATION**-The addition of internal oil lines and/or the modification of the original oil lines for adjusting the flow are permitted.

**4.1.18: FUEL PUMP**-Free

Come from a commercial catalogue.

Inside the fuel tank, or outside the fuel tank, protected by a leak-proof and flameproof cover.

**4.1.19: FUEL TANK**-From any OE parts catalogue of an automobile manufacturer or a specialist fuel tank manufacturer

Maximum capacity of the fuel tank: free.

The floor of the cockpit may be modified in order to install the fuel tank in the rear seats area; the maximum dimensions of the resulting hole in the floor are 500 x 500 mm. The bottom of the fuel tank should not be lower than the chassis around it.

The bottom of the tank must be minimum 50 mm higher from the lowest point of the chassis

A 1 mm thick steel screen between the tank and the cockpit is compulsory. Not applicable to OE tanks in the original location

A liquid-proof shield between the tank and the occupants is mandatory.

**4.1.20: COOLING SYSTEM**-Radiator core dimensions are free.

Mounting points may be modified. The original location to be respected (eg: if the radiator is located at the front of the car, the modified radiator should also remain at the same location).

Radiator cooling fan is free.

The thermostat is free, as is the control system and the temperature at which the fan cuts in. The radiator cap and its locking system are free.

The liquid cooling lines external to the engine block and their accessories are free. Lines of a different material and/or diameter may be used.

The fitting of extra cooling fans is permitted. A duct may be fitted between the radiator core and the cooling fan. Any spraying system on to the engine water radiator is prohibited.

**4.1.21: EXHAUST**-The exhaust manifold from its attachment at the cylinder head is free.

All vehicles must be equipped with a muffler/spark arrestor, the position of which is free. The exhaust gases must, at all times, pass through this device. The exit of the exhaust pipe must be situated at the rear/side of the car, within the perimeter of the car, and maybe up to 25 cm inside of this perimeter

The exhaust exit must be horizontal. (For dirt events)

Exhaust system heat shielding is allowed either directly on the exhaust and/or on components in close proximity to the exhaust for the sole purpose of preventing excessive heat build-up.

Fitment does not entail the modification of other components.

**4.1.22: SOUND**-A limit of 103 dB/A is imposed for all cars.

The noise must be measured using a sonometer regulated at "A" and "SLOW", placed at an angle of 45° to and a distance of 1 meter from the exhaust outlet, with the car's engine running at 4500 rpm.

**4.1.23: TRANSMISSION SYSTEM**-Free

Front and rear mechanical limited slip differentials are authorised. If series production housing is used, the original series production material is allowed. In case of group Unrestricted open using custom transmission the gearbox housing must be made from aluminium alloy.

**4.1.24: CLUTCH**-Free (not applicable for cars with automatic gear boxes).

**4.1.25: OIL COOLING**-Oil radiators are allowed. The oil radiators and their connections are free, provided that they do not give rise to any modifications to the bodywork and are situated within the perimeter of the bodywork.

**4.1.26: TRANSMISSION SHAFT**-Free design.

A minimum of two steel safety loops must be fitted to each longitudinal shaft, to prevent it from hitting the ground in case of breakage. They must be fitted so that they are positioned one on either side of the midpoint of the propeller shaft.

For propeller shafts of less than 500 mm total length, only one safety loop is mandatory.

Should any tank be close to a longitudinal shaft, it is recommended that the tank has extra protection in the walls close to the shaft.

**4.1.27: SUSPENSION**-Cars must be fitted with a sprung suspension.

The use of active suspension is forbidden.

Coil/leaf springs are compulsory. They must be made from metallic material.

Solid rear axle vehicles may add traction bars or torque arms.

Camber kits (also known as camber compensators) may be installed but only the lower arm can be modified.

Adjustable camber plates may be installed at the top of the strut and the original upper mounting holes may be slotted.

Any type of bearing or bushing may be used in the adjustable camber plate attachment to the strut.

The modification of spring and shock absorber adjustments from the cockpit is prohibited.

The reinforcing of the structural parts of the suspension by the addition of material is allowed.

The suspension reinforcements must not allow two separate parts to be joined together to form one spring. The spring seats may be adjustable if the adjustable structural part is a part of the spring seat and is separated from the original suspension parts/body work (it may be removed).

Coil springs:

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

Leaf springs:

The length, width, thickness and vertical curvature are free.

Torsion bars:

The diameter is free

Spring-Shock absorber assemblies:

Spring shock absorber assemblies are authorised even if the series vehicle is not so equipped, provided that the original spring is removed.

**4.1.28: SHOCK ABSORBER-**Twin shock absorber per wheel is authorised.

All shock absorbers must be independent of each other

Once the springs are removed, the vehicle must sink down to the bump stops in less than 5 minutes. With regard to their principle of operation, gas-filled shock absorbers are considered as hydraulic shock absorbers. A suspension travel limiter may be added.

Its sole function must be to limit the travel of the wheel when the shock absorber is not compressed.

Changes to the spring and shock absorber settings from the cockpit are prohibited.

The damper tanks may be attached onto the unmodified shell of the cars. If the shock absorbers have separate fuel reserves located in the cockpit, or in the boot if this is not separated from the cockpit, these must be strongly fixed and must have a protection.

A silent block might be replaced by a "Uniball" joint.

Gas filled dampers, regarding their working principle, are considered as hydraulic dampers.

All shock absorbers must be independent of each other

**4.1.29: ANTIROLL BARS-**Free.

But they must respect the following:

Their operating principle must be solely mechanical

The antiroll bars and their links must be made from metallic material and must not be adjustable from the cockpit



**4.1.30: STRUT BRACE**-Addition of a two/three point strut brace is authorised.

Lower suspension braces are authorised. The pick-up points should be within 50mm of the actual suspension attachment to the chassis.

**4.1.31: WHEELS**-Diameter Free. Wheel spacers are permitted. The wheel tyre combination should not protrude beyond the perimeter of the car / body kits

**4.1.32: TYRE**-Free.

Retreaded tyres or modified custom re grooved prohibited.

Tyres manufactured specifically for agricultural use or marked for use at limited speeds are prohibited.

Preheating of tyres by electrically heated covers or similar is prohibited.

**4.1.33: BRAKES**-Relocation of the hand brake is permitted

Free but must be single master cylinder with dual circuit.

Brake discs must be made from iron-based alloy

A hydraulic handbrake system is authorised

Original equipment ABS braking systems may be electrically disabled or may be removed.

Incase of unrestricted open group air ducts may be fitted to the brakes provided that they extend in a forward direction only. They may serve no other purpose.

**4.1.34: STEERING**-The steering system and its position are free, but only a direct mechanical linkage between the steering wheel and the steered wheels is permitted.

Four-wheel steering system is forbidden.

Any steering wheel may be used. An alternate steering wheel assembly, including all mounting hardware, which replaces an airbag-equipped wheel, can be used

**4.1.35: DASHBOARD**-Free. May be removed.

**4.1.36: COOLING OF CABIN**-The heating/Cooling system may be removed.

It is permitted to install one or two roof vent(s) on the roof of the car.

**4.1.37: WINDSCREEN**-The windscreen must be of laminated glass. Or of polycarbonate ensuring the same transparency as the original glass

If of polycarbonate, the thickness must not be less than 5 mm. Windscreens which are damaged to such an extent that visibility is seriously impaired or that there is a likelihood of their breaking further during the competition will be rejected.

The addition of a protective transparent film on its external face is permitted.

**4.1.38: SIDE WINDOW**-Glass may be replaced with polycarbonate ensuring the same transparency as the original glass (minimum thickness 3 mm). If the original window winding mechanism is removed then A sliding window in the side windows of the driver's and co-driver's doors must be fitted. The opening must be a minimum of 130 mm x 130 mm and a maximum of 150 mm x 150 mm.

The sliding windows must be closed at the start of the race.

**4.1.39: WINDSCREEN / WIPERS**-Windscreen wipers are free, but they must be in working order. The fitting of an additional windscreen washer tank or of one with a greater capacity is authorised. This tank must be strictly reserved for the cleaning of the windscreen.

**4.1.40: BONNET**-Material: Composite authorised. If fibre glass is used, the minimum thickness should be at least 3mm

Outer surface basic shape and rigidity unchanged from the original car. A change in shape, at parts, to provide clearance for under body components is permitted. Openings may be made up to a maximum total surface of 1050 cm<sup>2</sup>, including any original opening

At least two safety fasteners must be fitted.

Minimum number of fixing points to the bodyshell = 4.

The original locking mechanisms must be rendered inoperative or removed.

Opening from the outside must be possible (without tools).

A maximum of 2 bonnet scoops with a total area of 400 cm<sup>2</sup> is allowed.

**4.1.41: BOOT LID**-Material: Composite authorised.

Outer surface shape and rigidity unchanged from the original car.

Inner surface is free. With ribs for rigidity.

At least two safety fasteners must be fitted.

Minimum number of fixing points to the bodyshell = 4.

The original locking mechanisms must be rendered inoperative or removed.

Opening from the outside must be possible (without tools).

**4.1.42: FENDER-**The material and shape of the fenders are free, provided that they do not give rise to any additional aerodynamic effect. However, the material must have a minimum thickness of 1.5 mm. Material: Composite authorised.

Flares may be added

Fenders and bumpers may be modified for tyre clearance.

**4.1.43: MUD FLAPS-**The fitting of mud flaps is compulsory.

They must be made of a flexible plastic material at least 4mm thick. They must cover at least the width of each wheel.

**4.1.44: DOOR-**Except for the driver and passenger door, the material is free, provided that the Original outside shape and rigidity is retained. It must be possible to open the front doors from the outside and from the inside.

**4.1.45: FRONT BUMPER-**Material: Composite authorised.

The thickness of the front bumper must be 3 mm minimum. These constructions must be such that the structural integrity of the bumper remains. Should cover at least 75% of the area covered by the OE bumper.

**4.1.46: REAR BUMPER-**Material: Composite authorised.

The shape of the series model must be preserved, but in order to connect it with the free parts, a local tolerance of +/- 5 mm in relation to the original surface is accepted.

The thickness of the rear bumper must be 3.0 mm minimum.

It is possible to enlarge the original cut-out in the rear bumper for the exhaust or to create one or more new cut-outs, solely in order to allow the exhaust to exit.

**4.1.47: BULKHEAD, ENGINE COMPARTMENT-**The bulkhead separating the cockpit from the engine compartment may be modified to accommodate components, up to a maximum of 100 mm but shall not be moved entirely.

The shape is free.

The bulkhead material must be the same or stronger than the material of the homologated car. In any case, the materials added must be iron-based alloys and must be welded to the bodywork.

**4.1.48: UNDERBODY PROTECTION**-The fitting of underbody protections is 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, extinguisher bottles.

These protections must be made from either aluminium alloy or steel, or composite material.

Minimum thickness for aluminium alloy and composite material is 4 mm and 2 mm for steel.

**4.1.49: DRIVER SEAT / POSITION**-The driver and front passenger seats may be replaced with the following restrictions. The seating surface must be fully upholstered. The top Of the seat, or an attached headrest, may not be below the centre of the driver's head. The seat must be attached using the OE body mounting holes/ studs. Additional mounting points may be added.

Longitudinally:

The front seats may be moved backwards but not beyond the vertical plane defined by the front edge of the original rear seat. Transversally: Seat centreline must not be less than 250 mm from the car's centreline.

#### **4.1.50: SAFETY HARNESS**

**A MINIMUM 3 POINT Safety Harness as provided by the manufacturer is compulsory**

**4.1.51: TOWING DEVICE**-One front and one rear towing device is compulsory. They must be clearly visible and marked in yellow, red or orange. Towing straps may be used.

**4.1.52: REAR LAMPS**-Each car must be fitted with a minimum of two red rear brake lights. The minimum area of each should not be less than 10cm<sup>2</sup>

**4.1.53: HEAD LAMPS**-FREE, and may be removed. **However** the opening must be covered with fibre glass / metal plate and be safely secured.