



The Federation of Motor Sports Clubs of India

**GYMKHANA  
TECHNICAL  
REGULATION**

**2018**

## **Art:1**

### **1.1: ELIGIBLE CARS**

Homologated in Group A/N

Cars not homologated with the FMSCI but produced in series and regularly on sale through a recognised commercial network are also eligible. Purpose built vehicles conforming to the relevant regulations. It is up to the applicant to supply the elements necessary for proving the eligibility of a model.

### **1.2: TELEMETRY**

Any form of wireless data transmission between the vehicle and any person and/or equipment is prohibited while the car is on the track.

Voice radio communications between the driver and his/her team is permitted. Transponder from the official timekeeping, and Automatic timing recording. On-board data recorders are allowed.

### **1.3: GPS**

GPS Units are allowed as long as there is no wire or wireless connection with any of the electronic systems of the car. This definition includes in particular the dashboard, meters, the engine management unit, etc. Car speed measurement devices must be totally independent and cannot be connected in any way with any system of the car.

### **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-authorised modification.

## **Art.2**

### **GROUP | STOCK**

Modifications not mentioned below are strictly not authorised :

**2.1:** The minimum weight of the car should conform to OE manufacturer endorsed specs/data.

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

**2.1b:** Sound level should not exceed 103db.

**2.1c:** Lubricants are free.

**2.1d:** Body kits, front lip spoilers, Boot/roof spoilers are free.

**2.1e:** Wheel Rim, size and material are free.

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

**2.1f:** Steering wheel is free but spinner knobs 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. 3**

### **GROUP | MODIFIED**

All modifications authorised and specified in Group STOCK and in addition the following:

**3.1a:** Engine control unit / ECU is free (piggy back units permitted).

Modification of wiring harness must be within 10 inches from ECU connector.

Additional Sensors and Actuators not permitted.

**3.1b:** Air filter and its housing are free. But should remain inside the engine compartment only.

#### **3.1c: 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 be less than 10 cm from this perimeter. The exhaust exit must be horizontal. Exhaust pipe outlets which point downwards are prohibited.

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.

The following items are free respecting the special riders detailed below:

#### **3.1d: ENGINE BLOCK**

Free\*

#### **3.1e: CYLINDER HEAD**

Free\*

### **3.1f: DRIVESHAFT**

Free\*

### **3.1g: TRANSMISSION SYSTEM / GEARBOX**

Free\* (Weld / Electric / Pneumatic locking of differential is not permitted)

**\* The assemblies mentioned between art. 3.1d-3.1g must be the same as that provided by the manufacturer for that series of donor chassis. This includes evolution variants produced for the same chassis.**

(\* e.g. Esteem can be fitted with any Maruti Suzuki Engine that was produced for the market in the Esteem shell only).

**Internals of the above listed systems are free , provided that the modifications respect the group/class specifications that the vehicle is competing within. Modifications such as adding, removal of material, drilling, welding, machining, porting are permitted.**

### **3.1h: INTAKE MANIFOLD**

Free. But only a single throttle body system is allowed.

After Market Turbo Charging/ Supercharging/ NOS kits etc. are not permitted.

OE turbo cars will be subjected to the relevant multiplication factor.

### **3.2.1:IGNITION SYSTEM**

Only one spark plug per cylinder.

Ignition is only permitted by means of not more than a single ignition coil per cylinder.

### **3.2.2: INJECTION SYSTEM**

The injection system is free but with the following restrictions .

A combination of direct injection and port injection systems is not 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).

The body of the injector must come from a Manufacturer's commercial catalogue. Only solenoid injectors are allowed.

### **3.2.3: TURBOCHARGERS**

Only OE installed turbocharger systems allowed, this includes all turbo system components, mainly waste gates, plumbing and intercoolers. After market fitment of this system is prohibited.

### **3.2.4: INTAKE MANIFOLD.**

Custom made and ITB intake manifolds are not allowed.

All air entering the engine must imperatively pass through the throttle opening or the opening of this air injection system. The size of the single throttle body is free.

### **3.2.5: OIL PUMP / SYSTEM**

Free. Lubrication by dry sump is not allowed.

It is possible to improve the oil circulation internal to the engine.

External aftermarket oil coolers are not permitted.

### **3.2.6: FLYWHEEL**

Free.

### **3.2.7: CLUTCH**

Free. But must be operated by the driver's foot. (not applicable for cars with automatic gear boxes).

### **3.2.8: COOLING SYSTEM**

Radiator core dimensions are free but they (width, height, thickness) cannot be smaller than the standard part. 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 but the number is not.

Any spraying system on to the engine water radiator and intercooler is prohibited

### **3.2.9: 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.

### **3.2.10: SOUND**

A limit of 103 dB/A is imposed for all cars.

The noise must be measured in accordance with the noise measuring procedure 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

### **3.2.11: SUSPENSION**

Cars must be fitted with a sprung suspension.

The use of active suspension is forbidden.

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



The reinforcing of the structural parts of the suspension (with the exception of antiroll bars) and its anchorage points 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 provided the springs are mounted in series.

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.

### **.3.2.12: SHOCK ABSORBER**

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

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

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

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.

Twin shock absorber per wheel is not authorised.

All shock absorbers must be independent of each other

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

### **3.2.13: ANTIROLL BARS**

They must respect the following:

Not more than the number installed by the manufacturer.

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

### **3.2.14: 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.

### **3.2.15: STEERING**

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

### **3.2.16: SAFETY CAGE**

It is recommended that a safety cage be installed.

### **3.2.17: WHEELS**

Wheels made partially or entirely from composite material are prohibited.

Material, diameter and offset are Free. Wheel spacers are permitted.

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

### **3.2.18: TYRE**

Free but respecting the following, Retreaded tyres or modified custom re grooved tyres are prohibited. Tyres should not be more than five years old and suggested that they all be of the same year of manufacture.

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

### **3.2.19: BRAKES**

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, it must simultaneously control the two rear wheels.

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

### **3.2.20: MUD FLAPS**

The fitting of mud flaps is compulsory. They must be made of a flexible plastic / rubber material at least 4mm thick. They must cover at least the width of each wheel.

### **3.2.21: BUMPER**

Front and rear bumper may be modified but not be removed. Should cover more than 75% of area covered by OE bumper.

### **3.2.22: SEATS**

The co driver as well as the rear seat may be removed.

### **3.2.23: TRIMS**

Interior trims may be removed.

A maximum of two roof scoops may be allowed for the purpose of ventilation.

### **3.2.24: DASHBOARD**

The OE dashboard has to be retained

### **3.2.25: DOOR**

Except for the driver and passenger door, the material is free, provided that the Original outside shape and rigidity is retained. If the car is equipped with a FMSCI/FIA spec rollcage, the material of the passenger door is free. It must be possible to open the front doors from the outside and from the inside.

### **Proposed for 2019.**

If the car is not equipped with a FMSCI/ FIA roll cage, all doors should remain unchanged as provided by the vehicle manufacturer.

### **3.2.26: BONNET**

Material: Composite authorised but should maintain basic structural rigidity.

Outer surface basic shape unchanged from the original car. 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 350 cm<sup>2</sup> is allowed.

### **3.2.27: BOOT LID**

Material: Composite authorised.

Original outer surface shape and basic structural rigidity maintained .

Inner surface free.

At least two safety fasteners must be fitted.

Minimum number of fixing points to the body shell = 4.

The original locking mechanisms must be rendered inoperative or removed.

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

### **3.2.28: 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

### **3.2.29: CABIN COOLING**

It is allowed to install roof or side vents to cool the driver cabin.

### **3.2.30: WINDSHIELD**

It is mandatory to retain OE windshield.

### **3.2.31: WIPERS**

It is mandatory to have a fully functional OE windscreen wiper system.

### **3.2.32: TOWING DEVICE**

One front and one rear towing device is compulsory, the same may be a strap type arrangement .They must be clearly visible and marked in yellow, red or orange.

## **Art.4**

### **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. 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.

The cylinder head and engine block may come from different cars.

Engine speed is free.

Only automobile engines are allowed.

##### **4.1.1: ENGINE BLOCK**

It is possible:

To begin from the raw series components

To modify the material of the raw components using the series tooling, the cores are free to machine at will, as long as their origin can be proved. To rebore, sleeve and re sleeve, but the sleeves must have a circular internal section, must be concentric with the cylinders, must be dry or wet and must be distinct from one another.

##### **4.1.2: CYLINDER HEAD**

Free.

##### **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.

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.

#### **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.

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, with single stage compression and expansion, and must not have variable pitch or variable geometry.

#### **4.1.14: WASTE GATE**

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

#### **4.1.15: INTERCOOLER**

The intercooler must be of the air/air type.

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.

#### **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**

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 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.

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

#### **4.1.20: COOLING SYSTEM**

Radiator core dimensions are free but they (width, height, thickness) cannot be smaller than the standard part. 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 be less than 10 cm from this perimeter. The exhaust exit must be horizontal.

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 a 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, but must be operated by the driver's foot. (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.

Only one cable per wheel is allowed, and 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.

#### **4.1.32: TYRE**

Free.

Retreaded tyres or modified custom re grooved prohibited.

Tyres should not be more than five years old and suggested that they all be of the same year of manufacture. 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**

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 but may not be removed or altered in any other way.

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.

Outer surface basic shape and rigidity unchanged from the original car.

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 free.

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 although tires may extend beyond the bodywork.

fenders must be continuous.

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. If the car is equipped with a FMSCI/FIA spec rollcage, the material of the passenger door is free. It must be possible to open the front doors from the outside and from the inside.

**Proposed for 2019.**

If the car is not equipped with a FMSCI/ FIA roll cage, all doors should remain unchanged as provided by the vehicle manufacturer.

#### **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 must retain its original place within a tolerance of  $\pm 100$  mm in X direction.

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.

Incase of unrestricted open group, cars must run with a rally seat.

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

The original seat belts must be replaced by a four point safety harness homologated according to FIA 8853/98 standard. It must have a minimum of six (6) anchorage points conforming to the specifications of Article 253-6 of Appendix J. The two shoulder straps must have separate anchorage points.

#### **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

#### **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.

## **Art 5**

### **PURPOSE BUILT RACE BUGGY / SPACE FRAME VEHICLES**

#### **5.1: DEFINITION**

Cars must be rigidly-closed steel tube constructed models with custom built suspension and body panels. 4-wheeled vehicles designed and built specifically for participating in motorsport. The vehicles must have 2- or 4-wheel drive.

##### **5.1.1: ENGINE & TRANSMISSION**

All modifications permitted as per unrestricted open

##### **5.1.2: ENGINE PROTECTION**

A protective hoop is obligatory for rear-engines.

The rear part of this hoop must entirely envelop the engine including the exhaust and its outlet. This hoop must be braced in its centre.

This may be connected to the underneath of the vehicle or to the main roll bar. The tubes used must have a minimum wall thickness of 1.5 mm.

The protective hoop for the engine may be in several detachable parts, but in this case the joined tubes must be sleeved and the assembly effected by a bolt on each end of the sleeve, positioned at 90° to one another, separated by at least 30 mm. The diameter of the bolts to be used is at least 6 mm.

##### **5.1.3: BODYWORK**

This must be impeccably finished, in no way of a makeshift nature. It must not have any sharp angles or sharp-edged or pointed parts, and angles or corners must be rounded with a radius of not less than 15 mm.

At the front and at the sides there must be hard, opaque bodywork providing protection against stones.

At the front, this bodywork must rise at least to the level of the centre of the steering wheel,

All mechanical elements necessary for propulsion (engine, transmission) must be covered by the bodywork or fenders.

#### **5.1.4: COCKPIT**

No part of the cockpit, or situated in the cockpit, may have sharp or pointed parts.

Particular care must be taken to avoid any protrusion which could injure the driver.

The two safety rollbars must be high enough for a line extended from the top of the main rollbar to the top of the front rollbar to pass at least 5 cm over the top of the driver's helmet when he is seated normally in the car with his helmet on and his safety harness fastened.

A rigid roof panel above the driver is mandatory.

The roof panel must be made either from a steel sheet, minimum thickness 1.5 mm, or from aluminium alloy or composite material, minimum thickness 3.0 mm.

It is obligatory that lateral protection be provided as follows for the two side openings of the cockpit

These openings must be closed completely to prevent the passage of a hand or arm.

This closing must be effected:

Either by netting with a mesh of 6 cm x 6 cm made from cords of

at least 3 mm in diameter, or with a mesh of between 10 mm x 10 mm and 25 mm x 25 mm, the minimum diameter of the cord of which the mesh is formed being 1 mm

This netting must be fixed permanently at the top and rapidly detachable at the bottom from inside or outside or by side windows made from polycarbonate, of a minimum thickness of 5 mm.

### **5.1.5: MINIMUM WEIGHT**

The weight of the vehicle, without the driver on board and with the fluids remaining at the moment at which the measurement is taken, must at all times during the competition comply with the following computation: i.e: The cubic capacity of the engine divided by a constant of 2.2. ( Example a 1600cc car must weigh  $1600/2.2=727$  kg)

It is permitted to conform to the specified weight by adding well anchored ballast. The weighing scale used by the technical delegate/Scrutineer will be the official measuring scale and its reports will be considered as final without prejudice.

### **5.1.6: FIRE PROOF BULKHEAD**

A metallic fire-proof, flame-proof and liquid-tight bulkhead must be fixed to the floor of the car and to the two rear uprights of the rollover structure. It must extend over the whole width of the rollbar; its upper edge must be at least 50 cm from the floor. The floor must be closed.

### **5.1.7: FENDERS**

They must be firmly fixed.

The fenders must project over the wheels, and provide efficient covering of at least one third of their circumference and at least the



entire width of the tyre, and descend towards the rear to at least 5 cm below the axis of the wheels

Fenders must have no perforations or sharp angles.

Should it be necessary to reinforce the fenders, this may be done with iron rod of 10 mm maximum diameter, or with tubing with a maximum diameter of 20 mm. Under no circumstances may the fender reinforcement be used as a pretext for the construction of crash bars.

### **5.1.8: SUSPENSION**

The use of active suspension is forbidden.

The axles must be sprung.

The mounting of axles directly onto the chassis is not allowed.

### **5.1.9: FUEL/OIL/COOLING LIQUID TANKS**

They must be isolated from the driving compartment by means of bulkheads so that in the case of spillage, leakage or failure of a tank, no liquid may pass into the driving compartment. The same applies to the fuel tanks vis-à-vis the engine compartment and exhaust system.

The fuel tank must be an OE tank.

It must be mounted in a sufficiently protected location and be firmly attached to the car.

It must not be in the driver's compartment, and must be separated from it by a fire-wall. The filler caps of this fuel tank must be leak proof and must not protrude beyond the bodywork.

### **5.1.10: FUEL LINES & PUMPS**

Fuel lines, oil lines and brake lines must be protected externally against any risk of deterioration (stones, corrosion, mechanical

breakages, etc.), and inside the cockpit, as far as the fuel circuit is concerned, against all risks of fire.

There must be no connections on the lines situated in the cockpit.

### **5.1.11: WHEELS & TYRES**

The maximum diameter permitted for wheels is 18 inches.

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

Tyres should not be more than five years old and suggested that they all be of the same year of manufacture.

Home-made constructions are prohibited.

### **5.1.12: WINDSCREEN**

Must be of laminated glass or of a polycarbonate, and the windows must be of safety glass or plastic.

If of plastic, the thickness must not be less than 5 mm.

Cars with laminated 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 windscreen may be replaced, or protected, by a metal grille covering the entire surface of the windscreen opening. The mesh size must be between 10 mm x 10 mm and 25 mm x 25 mm, and the minimum diameter of the wire of which the mesh is formed must be 1 mm.

In the event of absence of a windscreen, the wearing of a full face helmet with a visor is compulsory; otherwise the vehicle shall not be admitted to the start. In cars which have a laminated glass windscreen or which have the metal grille defined above and no

polycarbonate windscreen, motorcycle type goggles or a visor fitted on the helmet must be worn by the driver

### **5.1.13: SAFETY CAGE**

Must comply with specifications laid down by the FMSCI.

Nevertheless, for cars built before 01.01.1995, in accordance with Articles 253-8.1, 8.2, 8.3, the minimum dimensions of the tubes making up the cage are 38 x 2.5 mm or 40 x 2 mm.

### **5.1.14: 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

### **5.1.15: DASHBOARD**

The material and shape of the dashboard is free, can be custom made but cannot be absent. The dashboard / and or the area around it must have no sharp protruding edges.

### **5.1.16: MUDFLAPS**

It is obligatory to fix mudflaps behind the driven wheels, made of a flexible material and with a minimum thickness of 5 mm.

The mudflaps must be situated no more than 10 cm above the ground and cover at least the whole width of the complete wheel and must not exceed this width by more than 5 cm.

With the exception of a transverse mudflap in front of the rear wheels, to protect the engine, any other system of mudflaps or protection under the car is forbidden.

#### **5.1.17: DRIVER SEAT**

The seat supports must be fixed on anchorage points for fixing seats, but instead of bolting the cross members to the chassis, the cross members must be welded to the buggy's main structure, cross-wise or length-wise.

The seat supports may also be welded to the buggy's main structure. The seat supports must be fixed to the anchorage points for fixing seats via at least 4 mounting points per seat, using bolts measuring at least 8mm in diameter. The driver seat may be tilt by a maximum of 15° backwards to the vertical.

#### **5.1.18: SAFETY HARNESS**

The vehicle must have installed a four point safety harness homologated according to FIA 8853/98 standard. It must have a minimum of six (6) anchorage points conforming to the specifications of Article 253-6 of Appendix J. The two shoulder straps must have separate anchorage points.

#### **5.1.19: 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.

#### **5.1.20: TOWING DEVICE**

One front and one rear towing device is compulsory.

They must be clearly visible and marked in yellow, red or orange

#### **5.1.21: REAR LAMPS**

Each car must be fitted with a minimum of two red rear lights

#### **5.1.22: HEAD LAMPS**

FREE, and may be removed.