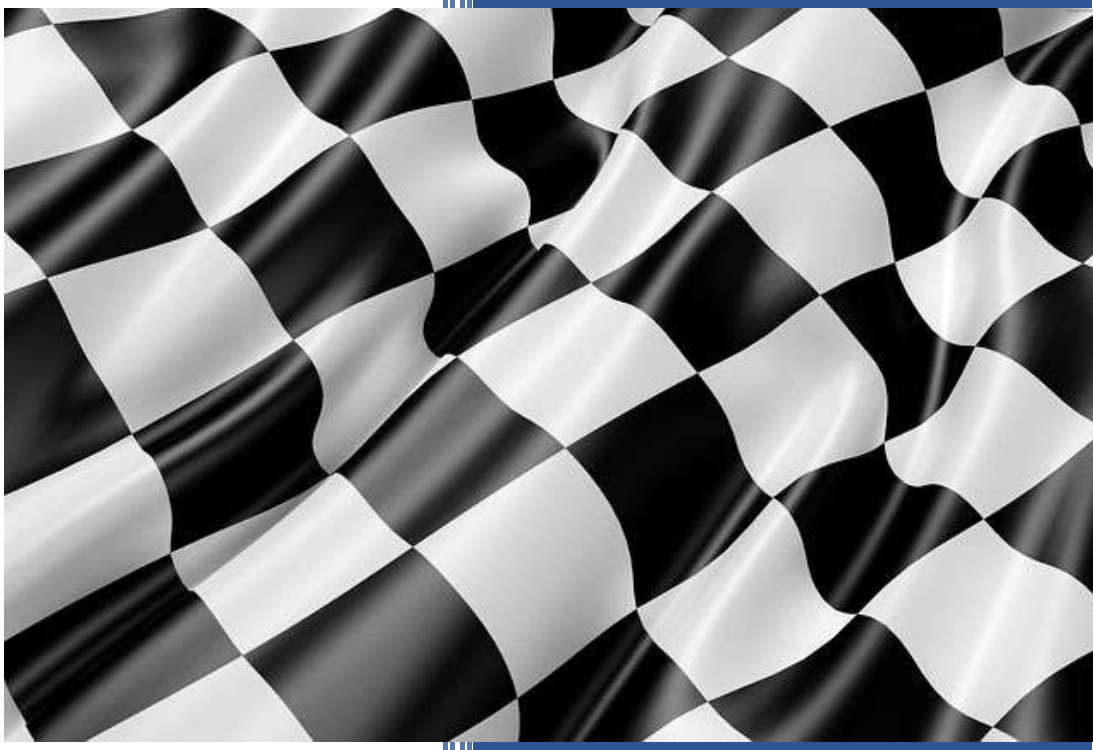
2023

Crono Rally Technical Regulations

Club Standing Supplementary Regulations



Version 1

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REVIEW AND AMENDMENTS

ANY proposed / desired changes to these Championship Regulations must be submitted to the Controllers for approval. The Controllers reserve the right to introduce new Regulations and / or amend existing Regulations with the approval of Motorsport South Africa (MSA).

Amendments and updates to the rules will be recorded in the Amendment Record, detailing the updated version, date of approval of the amendment and a short summary of the amendment. The new version of the rules will be published by MSA at least seven (7) days prior to the next event being held unless a shorter notice period is approved by MSA.

AMENDMENT RECORD

Modified Rule Number	***Date Applicable***	***Date of Publication***	***Clarifications***

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1. MOTORCYCLES

1.1 GENERAL

Each Motorcycle competitor must carry soft water tank of a "Camelback" type of minimum 2 liters. At each Refuelling, competitors must fill up their Camelback with water or other hydration drink. The Chief Technical Steward will have the final decision for the acceptance of the water tank solution and the fixing method. (Plastic bottles or cans cannot be considered as fixed water tank).

All motorcycles must carry the necessary survival equipment as requested in the "SURVIVAL EQUIPMENT" section of this document.

1.1.1 DEFINITION OF A FRAME OF A SOLO MOTORCYLE

The structure or structures used to join any steering mechanism at the front of the machine to the engine/gear box unit and to all components of the rear suspension.

Every motorcycle in the 'parc-fermé' must be equipped with a side-stand. The side-stand must be fitted, either on the frame or on the swing arm.

1.1.2 STARTING DEVICES

Starting devices for the engine are compulsory.

1.1.3 OPEN TRANSMISSION GUARDS

a) A guard must be fitted to the countershaft sprocket.
b) A chain guard must be fitted in such a way to prevent trapping between the lower chain run and the final driven sprocket at the rear wheel.

1.1.4 EXHAUST PIPES

a) Exhaust pipes and silencers must fulfil MSA requirements concerning sound control.
b) Production bikes should carry production or road legal exhaust.
c) The axis of the silencer end must be parallel (tolerance 15°) to the two principal longitudinal planes of the vehicle. The extremity of the silencer must not pass the vertical tangent of the rear tyre.
d) The edge of the silencer shall not be dangerous in case of accidental contact with the riders or helpers.
e) Exhaust fumes must be discharged towards the rear but not in such a manner as to raise dust, foul the tyres or brakes, or inconvenience the passenger (in the case of sidecars), or any other rider.

1.1.5 HANDLEBARS

a) The width of handlebars must be not less than 600 mm and not more than 850 mm.
b) Handlebar clamps must be very carefully radiused and engineered so as to avoid any fracture points in the handlebar.
c) Exposed handlebar ends must be plugged with a solid material or rubber covered.
d) When hand protectors are used, these must be made of a shatter-resistant material and have a permanent opening for the hand.
e) Repair by welding of light alloy handlebars is prohibited.

1.1.6 CONTROL LEVERS

a) All handlebar levers (clutch, brake, etc.) must be in principle ball ended (diameter of this ball to be at least 16 mm). This ball can also be flattened, but in any case the edges must be rounded (minimum thickness of this flattened part 14 mm). These ends must be permanently fixed and form an integral part of the lever. If the gear lever consists of a tube, then its edge must be rounded.
b) Each control lever (hand and foot levers) must be mounted on an independent pivot.
c) The brake lever if pivoted on the footrest axis must work under all circumstances, such as the footrest being bent or deformed.

1.1.7 THROTTLE CONTROLS

a) Throttle controls must be self-closing when not held by the hand. All air intakes into the cylinder must pass through the throttle body. No other means allowing ambient air into the inlet track of the cylinder head are allowed.
b) Solo motorcycles must be equipped with a functional ignition kill switch or button mounted on either right or left side of handlebar (within reach of the hand while on the hand grips), that cut the power to the engine.

1.1.8 FOOTRESTS

Footrests must be of a folding type and must be fitted with a device which automatically returns them to the normal position, and an integral protection is to be provided at the end of the footrest which must have at least 8 mm radius. The footrest teeth shall not be sharp. The height of the footrest teeth must be 10 mm maximum.

1.1.9 BRAKES

All vehicles must have at least 2 efficient brakes (one on each end, front and rear) operated independently and operating concentrically with the wheel.

1.1.10 MUDGUARDS AND WHEEL PROTECTION

a) Motorcycles must be fitted with mudguards.
b) Mudguards must project laterally beyond the tyre on each side.
c) The front mudguard must cover at least 100° of the circumferences of the wheel. The angle formed by one line drawn from the front edge of the mudguard to the centre of the wheel and one drawn horizontally through the centre of the wheel must be between 45° and 60°.
d) The rear mudguard must cover at least 120° of the circumferences of the wheel. The angle formed by two lines, one drawn from the rear edge of the mudguard to the centre of the wheel and one drawn horizontally through the centre of the wheel shall not exceed 20°. The angle (20° max.) for the rear mudguard shall be measured with the rider sitting on the motorcycle.

1.1.11 STREAMLINING

Radiator covers (shields) must be made of flexible materials only (e.g. plastics).

1.1.12 LIGHTING, WARNING EQUIPMENT AND SPEEDOMETERS

a) Motorcycles and their equipment must comply with the national legal requirements for road traffic of the country in which the vehicle is registered and with other rules specified in the Supplementary Regulations.
b) The electric generator must operate continuously and normally with respect to current and voltage requirements to run front and rear lights during the competition and at post competition control. The electrical connections must be retained.

c) Lighting equipment for all categories must conform in every way to the International Convention on road traffic, moreover the original headlights and rear lights may be modified or replaced. Extra lights may be added

d) Each motorcycle must be equipped with at least:
   - A front light (min 55 watts or equivalent in 'lumen').
   - A Rear / Break light
   - A generator with a required performance to support all requirements.
   - An audible horn, minimum 90 dB/A, measured at one meter.
   - Minimum one rear view mirror.

1.1.13 FUEL AND LUBRICANT

All vehicles must be refuelled with unleaded fuel from public pump station.

1.1.14 FRAME AND ANCILLARIES

The main frame must be marked with the original Vehicle Identification Number (VIN). The frame number (VIN) must remain visible at all times.

The frame shall not be replaced during the event. The frame may be repaired under the supervision of the Technical Steward.

1.2 ADDITIONAL SPECIFICATIONS FOR MOTORCYCLES

1.2.1 NUMBER PLATES

Number plates are required.

The Organizer will provide each rider with a set of identification stickers comprising 1 front Sticker and 2 side Stickers called race decals. They shall in no circumstances cover, throughout the duration of the event, even partly, the registration number of the motorcycle.

1.2.2 FUEL TANK(S)

The total fuel capacity carried in all tanks is 45 liters maximum.

1.2.3 VEHICLE WEIGHT

Unrestricted

1.3 ENGINE

The engine number must remain visible at all times.

Engine preparation is free.

During the event, an "engine change" means removing the engine from the frame. Engine "A", originally fitted in the frame of the bike can be removed from the frame to be repaired and be replaced by engine "B". Engine "A" may be repaired during the Event on condition that the engine crankcase marked during the preliminary technical inspection remains the same.

Repairs to the engine's "top end" (cylinder + cylinder head) are free during the event. All intervention to the "bottom-end" (inside the crankcases) will be considered as a change of engine.

A minimum of one bolt/nut used to fix the engine must be drilled in order to attach a seal embracing the frame.

The engine may be removed from the frame to repair a problem not related to the crankcase. This may be done only under the supervision of the Technical Steward. The Technical Steward only can cut and replace the seals without being penalized.

1.3.1 STEERING

The machine can operate on the front wheels only.

1.3.2 CHASSIS AND ANCILLARIES

Shock absorbers and associated springs are free.

The main chassis must be marked with the original Vehicle Identification Number (VIN). The frame number (VIN) must remain visible at all times.

The chassis shall not be replaced during the event. The frame may be repaired under the supervision of the Technical Steward.

The rear sub-frame can be modified, but the type of material must remain as in the production model and the weight cannot be lower.

Fairing and body can be modified or replaced.

Seat may be modified or replaced.

Battery may be changed but the nominal energy must be equal or higher than the original one.

Footrests and foot controls may be modified or replaced.

1.3.3 BRAKES, WHEELS AND RIMS

Disc brakes, calipers and associated pipes can be changed.

Every front wheel must have a single, functional brake installed on each axle and be operated by a handlebar mounted lever.

At the rear, the vehicle must have a brake on each wheel or a brake installed jointly on the rear wheel axle, operated either by a lever on the handlebar or by a foot pedal.

1.3.4 MUDGUARDS

The front and rear wheels must be covered by mudguards made of flexible materials, covering each wheel over an area of minimum 30 degrees.

1.3.5 FUEL TANK(S)

Supplementary fuel tanks are allowed but must be at least 25 mm away with relation to the edges of the protective barrier.

The maximum fuel tank capacity (counting all tanks) is 45 liters.

Original fuel tanks can be modified or replaced but the fixing points on the chassis and the fixing system must be as in the original model. Supplementary fuel tanks are allowed.

1.3.6 PROTECTION

The secondary chain transmission must be equipped with a cover/shield protecting both the chain sprocket and the brake disc.

A compulsory countershaft sprocket guard must cover the sprocket by 30% minimum and prevent the rider's hand/foot becoming trapped.

1.4 EQUIPMENT AND PROTECTIVE CLOTHING DURING PRACTICE AND RACE

Crono Rally cannot be held liable for any injuries that a rider or passenger may sustain from the use of a specific item of equipment or protective clothing.

1.4.1 CLOTHING AND PROTECTORS

It is compulsory that riders/passengers wear back and chest protectors. It is recommended that riders wear limb joint protectors.

1.4.2 EYE PROTECTION

a) Riders/passengers shall wear goggles. The use of glasses, helmet visors and "roll offs" is also permitted.
b) The use of "tear offs" is forbidden for environmental reasons.
c) The material used for glasses, goggles and visors must be made of shatter-proof material.
d) Helmet visors must not be an integral part of the helmet.
e) Eye protectors which cause visual disturbance (e.g. scratched) must not be used.

1.4.3 WEARING OF HELMETS

a) It is compulsory for all participants taking part in practice and races to wear a protective helmet. The helmet must be properly fastened, be of a good fit, and be in good condition. The helmet must have a chin strap type 'retention system'.
b) A protective lower face cover must be present and must be not detachable and not moveable.
c) Helmets constructed with an outer shell made of more than one piece are not permitted (e.g. they must not contain any seam).
d) A retention system with a strap and the double D ring closing system is recommended.
e) All helmets must be marked with one of the official international standard marks.
f) Failure to observe the above rules will entail exclusion.

1.4.4 HELMET OPERATIVE INSTRUCTIONS

a) Scrutineers, under the supervision of the Chief Technical Steward, may check prior to practice and the races that all helmets meet the technical requirements.
b) If a helmet does not meet the technical requirements or is found to be defective, the Technical Steward will clearly mark in red (e.g. with a red dot) all international marks without destroying them and retain the helmet until the end of the event. The rider must submit another helmet for approval by the Technical Steward. After an accident involving impact, the helmet must be presented to the Technical Steward for examination.

c) All helmets must be intact and no alteration must have been made to their construction. After an accident involving a shock or impact, the helmet must be presented to the Technical Steward for examination.
d) The Chief Technical Steward and/or the Technical Steward may perform the following checks before the rider is permitted to take part in practice of the race:
    - That the helmet fits well on the rider's head.
    - That it is not possible to slip the retention system over the chin, when fully fastened.
    - That it is not possible to pull the helmet over the rider's head by pulling it from the back of the helmet.

1.5 TECHNICAL VERFICATIONS

1.5.1 PREPARATION

- The reasons for scrutineering: SAFETY AND FAIRNESS.
- Before the START of the competition, a closed and guarded area (closed parc/parc-fermé) will be prepared.
- Inspection will take place under cover with a large enough area.
- Inspection area will be supplied with the necessary equipment, including tables, chairs, electric light and power outlet.

1.5.2 VERIFICATIONS

The Sound control will be carried out first. The Sound level will be recorded in the technical card. The exhaust silencer will be marked with paint or sticker.

A List of verifications that will be performed:

- **Make + model**
- **Sound**
- **Cut-off switch**
- **Self-closing throttle**
- **Lights (front, rear, brake)**
- **Vehicle identification plate/chassis number**
- **Crankcase**
- **Registration plate + insurance**
- **Fuel tank**
- **Silencer**
- **Guard for the countershaft sprocket and rear sprocket**
- **Handlebar ends + protection + levers**
- **Side stand**
- **Tyres**
- **Helmet(s)**
- **Protective clothing**

a) An overall inspection of the motorcycle will be carried out in conformity with the FIM rules. On accepted motorcycles a sticker or paint will be applied on the front of the main frame.
b) The Technical Verifications will only be carried out when the Technical Verifications form of the motorcycle has been presented by the rider or his mechanic.
c) The fuel tank shall contain a minimum amount of fuel for the sound control.

d) At the arrival, at the end of the competition, all the marked parts on the motorcycles will be controlled. After control, the machines will be placed in a closed park for 30 minutes after arrival of the last rider from the class concerned, in case a protest is lodged or further examination is required.
e) If a motorcycle or a part of a motorcycle has to be verified and completely dismantled, the motorcycle, the part or the group of parts will be sealed and shipped to a place where the required tools are present for a disassembly. The Clerk of the Course/ Race Director must take the decision for this operation.
f) The disassembly and the verification of the motorcycle or the parts in question must take place in the presence of the Technical Steward, appointed to the event.

1.5.3. RIDER AND/OR MECHANIC

a) The rider and/or the mechanic and/or the Team Manager must attend at least once the Technical Verifications with the (rider's) machine within the time limits stated in the Supplementary Regulations.
b) On request of the technical steward, the rider must present themselves to the Technical Verifications.
c) The maximum number of persons present at the technical verifications will be the rider and/or the mechanic and/or the Team Manager.
d) A rider remains at all times responsible that his machine and his personal protective gear are in conformity with the Cross-country rallies Technical Rules.
e) The rider and/or the mechanic and/or the Team Manager must present a clean motorcycle in conformity to the Cross-country rallies Technical Rules and a duly filled in and confirmed Technical Verification form.
f) A rider and/or the mechanic and/or the Team Manager must present one motorcycle only.
g) The rider and/or the mechanic and/or the Team Manager must present the rider's protective wear (equipment), e.g. helmet and clothing.
h) Riders/mechanics/Team Managers must confirm their agreement by signing the register. The motorcycles will then be placed in a closed park.
i) Competitors must retrieve their machines within 30 minutes after the opening of the closed park area, except for the machines that are chosen for disassembly. After this time limit, the closed park officials will no longer be responsible for the machines left behind.
j) Any rider failing to report as required by the provisions below may be excluded from the meeting.
k) The Clerk of the Course/Race Director may prohibit any person who does not comply with the rules, or any rider who could be a danger to other participants or to spectators, from taking part in the competitions.

2. SSV

2.1 DEFINITION

SSV (Side-by-Side Vehicle) are motor vehicles propelled by a single thermal engine, four wheels, two- or four-wheel driven (designated 4X2 or 4X4), produced in series, (minimum 100 units), equipped with a steering system and a steering wheel, controlled by the rider. The seat of the driver and the passenger are positioned 'side-by- side'.

SSV's must be originally designed for 1-, 2- or 4- passengers and fitted with all the equipment required in the international convention on public road circulation. Original part(s): A part which has undergone all the stages of production foreseen and carried out by the manufacturer of the vehicle concerned, and originally fitted on the production vehicle.

2.2 REQUIREMENTS

2.2.1 FUEL TANKS

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

The fuel tank must be the original of the vehicle or homologated for competition according to an International Standard for Motorsport Safety.

If the OEM fuel tank is kept, no changes are necessary. If an additional tank is mounted that tank must comply with these regulations.

a) Number of fuel tanks
Maximum number of fuel tanks: 2

b) Fuel tanks capacity
Maximum combined capacity of the fuel tanks is 90 liters

c) Fuel tanks shielding
All vehicles must have shielding (6 mm. minimum thickness for aluminium alloy plate or 1.5 mm. minimum thickness for steel plate) fitted directly onto the chassis underneath any part of the tank(s) situated less than 200 mm above the plane defined by the lower face of the lowest tubes of the chassis that are situated within the vertical projection of the fuel tank(s).

d) Fuel tanks housing
The soft tanks must be contained in a leak-proof housing securely attached to the chassis/safety cage, the minimum specifications of which are as follows:
- Sandwich construction “Glass Reinforced Plastic + Kevlar or Carbon + Kevlar with an intermediate layer of absorbent material” with a minimum wall thickness of 10 mm
- Aluminum alloy with a minimum wall thickness of 3 mm except for the areas for mounting to the chassis.

A leak-proof cover, made from non-flammable material, easily accessible and removable only with the use of tools, must be installed in the protection for tanks, in order to allow the checking of the validity expiry date.

No part of this housing may be situated less than 40 mm above the lower face of the lowest tubes of the chassis that are situated within the vertical projection of the fuel tank.

The housing must not be:
- Longitudinally less than 800 mm rearward of the front axle centreline,
- Transversally less than 50 mm (inwards) from the outer part of the main rollbar feet
- Vertically less than 200 mm from any point of the upper part of the main rollbar.

e) Fuel tanks position
- Parts ahead of the back of the seats must be situated below the mounting points of the seats to the chassis.
- Any fuel tank must be situated inside the main structure of the vehicle.
- If the OEM fuel tank is maintained, its original location must be kept.

f) Fuel tanks outlet
The outlet of the fuel tank breather and hose must be kept away from hot areas.
The breather hose should be raised to near the upper limit of the chassis and again directed downwards.

g) Fuel cooling
The fitting of fuel coolers is authorized on the return circuit to the tank.

2.2.2 MATERIALS

Unless explicitly authorized by the present regulations, the use of the following materials is prohibited unless it corresponds exactly to the material used in the same components of the production vehicle:

- Titanium alloy
- Magnesium alloy
- Ceramics
- Composite

2.2.3 REGISTRATION PLATE

A registration plate must be securely fitted to the rear of the vehicle. It must always be visible.
The edges must be rounded to prevent injuries.

2.2.4 SCREWS, NUTS AND BOLTS

Unless otherwise stated, all threaded fasteners must be manufactured from iron-based alloys or aluminum-based alloys.

2.2.5 ENGINE SPECIFICATIONS

- Maximum CC: 1200
- Maximum speed: 160 km/h
- Minimum weight: 400 kg.
- Maximum overall length: 4550 mm
- Maximum width of the bodywork: 2600 mm without the rearview mirrors

2.2.6 CHASSIS

a) **Chassis**
Only tubular chassis in iron-based alloys are authorized.

b) **Standard components**
The position of the following components must remain unchanged (unless otherwise specified) in relation to the standard vehicle:

- Mounting points of the suspension and shock absorber components
- Engine and its supports
- Transmission parts (gearbox / differentials …)
- Steering rack
- Pedal box

All these components must be interchangeable (without modification) with those of the standard vehicle.

2.2.7 SAFETY CAGE

The fitting of a safety cage is compulsory.

a) Around safety cage

Inside the cockpit, the passage of the following elements between the side members of the body panel and the safety cage are forbidden:

- Electric cables
- Lines carrying fluids (except for drinking water and windscreen washer fluid)
- Lines of the fire extinguishing system.

Members may enter into the occupant's space by passing over the dashboard and trimming.

2.3 SEATS

Seat attachments

Each seat must be attached to the chassis via at least 4 supports, 2 at the front and 2 at the rear of the seat.

Supports must be attached to the seat and the chassis using bolts with a minimum diameter of 8 mm (quality 8.8 or higher) and counter plates. The seats must have reinforcement at the locations of the fixation.

The minimum thickness of the supports and counter plates is 3 mm for steel and 5 mm for light alloy materials. The minimum longitudinal dimension of each support is 6 cm.

The minimum area of contact between support, shell/chassis and counter plate is 40 cm2 for each mounting point.

2.3.1 SEAT HARNESSES

It is compulsory to use seat harnesses according to an International Standard for Motorsport Safety for each occupant.

It is not allowed to mix parts of harnesses. Only complete sets, of proprietary manufacture, may be used.

The harnesses must be replaced after every severe collision, and whenever the webbing is cut, frayed or weakened due to the actions of chemicals or sunlight.

Elastic devices attached to the shoulder straps are forbidden.

Any harness which does not function perfectly must be replaced.

A safety harness must be used in its homologation configuration without any modifications or removal of parts, and in conformity with the manufacturer's instructions.

a) Seat harnesses anchored points

It is prohibited for the safety harnesses to be anchored to the seats or their supports. The anchorage points of the series vehicle can be used.

If the installation on the series anchorage points is impossible, new anchorage points must be installed on the chassis, a separate one for each strap the furthest rearward as possible for the shoulder straps.

Care must be taken that the straps cannot be damaged through chafing against sharp edges.

In the downwards direction, the shoulder straps must be directed towards the rear, and must be installed in such a way that they do not make an angle of more than 45° to the horizontal from the upper rim of the backrest, although it is recommended that this angle does not exceed 10°.

They must also be replaced if metal parts or buckles are bent, deformed or rusted.

b) Seat harnesses release

Two belt cutters must always be carried on board (identified with a sign). They must be easily accessible for the driver and co-driver when seated with their harnesses fastened.

Furthermore, it is recommended that for competitions which include public road sections, the harnesses be equipped with push-button release systems.

2.4 BODYPANEL

The vehicle must be fitted with its original body panel. The only modification allowed are the one requested by this regulation, when safety items are added for example.

All parts of the body panel must be carefully and fully finished, with no temporary or makeshift parts and no sharp edges.

No mechanical component may be visible from above with the exception of shock absorbers, suspension arms, transversal driveshaft's, radiators, fans, wheels and spare wheels, including their anchorage points and attachments.

All parts having an aerodynamic influence and all parts of the body panel must be secured rigid to the completely sprung part of the vehicle (chassis/body unit); they must not have any degree of freedom, must be securely fixed and must remain immobile in relation to this part when the vehicle is in motion, with exception of the driver's and/or co-driver's ventilation sliders / scoops.

2.4.1 EXTERIOR

The maximum overall length is 4550 mm without spare wheels.

The maximum width the vehicle with of the body panel is 2600 mm without rear view mirrors and/or spare wheels.

A windscreen is optional. If a windscreen is installed, it must be made of non-breakable, shatterproof materials.

a) Lateral windows

Free, but it must be possible to remove the front doors or the windows of the front doors from inside the cockpit without the use of tools.

b) Windscreen wipers, motor and mechanism

These items are free.

c) Rear view mirrors

The vehicle must be fitted with two rear view mirrors, one on each side of the car, to provide efficient views to the rear. Each mirror must have a minimum area of 90 cm2.

d) Underbody protections

The fitting of underbody protections is authorized on the following conditions:

- They must respect the ground clearance
- They must be removable
- They must protect only the following parts: engine, radiator, intercooler, gearbox, center differential, rear differential, driveshaft's (longitudinal and transversal), sub-chassis, suspension parts, steering and exhaust line.

2.4.2 INTERIOR

a) Interior safety

The cockpit must be designed to ensure the comfort and safety of driver and possible codrivers. No part may present sharp edges or points. No mechanical part may protrude into the interior of the cockpit. Any equipment that could involve a risk must be protected or insulated and must not be situated in the cockpit. The cars must have lateral openings allowing the exit of the driver / co-driver.

b) Inspection hatches

Inspection hatches are authorized in the bulkheads of the cockpit.

c) Protection nets

Vehicles without side windows must be fitted with lateral protection nets attached to the main rollbar and doors using a quick release system or an articulated window rim.

2.4.3 TRANSMISSION

The complete transmission (except otherwise specified) of the standard vehicle must be kept without modification.

A modification is only allowed, in order to de-activate the active systems if necessary.

All the parts must be available, as spare parts, through the Manufacturer's commercial network.

a) Transmission shaft

Transmission shafts are free but must be made of steel. In addition, they must be solid and in one piece and the joints must come from a series vehicle.

The transmission shaft location must be identical to the standard vehicle and must respect the following conditions:

- It may be situated inside or outside the cockpit.
- The floor of the cockpit must be closed with a metallic sheet, minimum thickness 1.5 mm.
- The metallic sheet must be securely fixed to the chassis.

b) The transmission tunnel

The installation of a transmission tunnel is mandatory if the transmission shaft is located inside the cockpit and can be modified with the following conditions:

- It must enclose the longitudinal shaft over the complete length of the cockpit.
- It must be made from a steel sheet of minimum thickness 1.5 mm, or from a steel tube of minimum thickness 3.0 mm.
- The transmission tunnel must be securely fixed to the floor or the chassis in such a way as to ensure that it cannot be detached during normal use or in case of an accident.
- The entire surface of the transmission tunnel must be free of any kind of hole, with the exception of the part attaching it to the floor or chassis.

If fitted outside the cockpit, a minimum of two steel safety straps, of minimum thickness 3.0 mm and minimum length 250 mm, must be fitted to each longitudinal shaft to prevent it from hitting the ground in case of breakage.

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

c) Pedal box

Identical to the standard vehicle but the axis of the pedal box must be situated behind or directly above the axis of the front wheels.

d) Gearbox

Modification authorized on the gearbox / differential housing is allowed only to install an additional lubrication system.

e) Manual or semi-automatic or automatic operation control

Identical to the standard vehicle / no modification authorized.

f) Gearshift control

Gear shift type is free.

The gear shift lever must be fixed on the floor or on the steering column and can be adjustable. If fixed on the steering column the link between the gear lever and the gearbox must not be by cable or electric wires in case of semi-automatic or automatic control.

g) Cut-off sensor for gear command

Identical to the standard vehicle / no modification authorized.

h) Lubrication

An additional lubrication and oil cooling device is allowed (circulation pump, radiator and air intakes)

i) Control system
Hydraulic or mechanic or other. Identical to the standard vehicle / no modification authorized. The clutch stop (clutch release bearing) is free.

j) Master-cylinder and tank
Master cylinder and hydraulic oil reservoir are free.

k) Supports for Gearbox / CVT / Differentials
Supports are free

2.4.4 MINIMUM WEIGHT
No minimum weight.

2.5 ENGINE
The maximum cylinder capacity is set at 1200 CC for normally aspirated engines and for supercharged engines. The engine of the standard vehicle must be kept as original without modifications.

a) Positions and inclination of the engine
Identical to the standard vehicle / no modification authorized.

b) Engine supports
Supports are free.

c) Plastic shields
Engine shields made of plastic material, the purpose of which is to hide mechanical components in the engine compartment, may be removed if they have a solely aesthetic function.

d) Screws, nuts and bolts
A nickel-based alloy may be used for the fixing of the exhaust manifold to the cylinder head.

e) Gaskets
All gaskets are free.

f) Cylinder
Head gasket Identical to the standard vehicle / no modification authorized.

g) Ignition
The make and type of the spark plugs and leads are free. The use of ceramics for spark plugs is authorized.

h) Fuel injection system
Fuel rail
Free.

Injectors
Identical to the standard vehicle / no modification authorized.
Electronic control unit (ECU) and engine control software
The ECU is free but the electronic control unit must come from a large scale production catalogue or from a competition parts catalogue.

Sensors
Sensors shall be identical to the standard vehicle / no modification authorized.
Actuators
Identical to the standard vehicle / no modification authorized.

i) Air intake system
Air filter
The choice of air filter element and its position is free. The plenum chamber and the lines between the restrictor / manifold and the atmosphere are free. Engine intake air must not be taken from inside the cockpit and any modifications must not affect the structure of the vehicle.

j) Supercharging system
Identical to the standard vehicle (as homologated for public road)

k) Pressure regulation valve (waste gate) / System for injecting air into the exhaust manifold
These parts must remain identical as fitted on to the standard vehicle / no modifications authorized.

l) Exhaust line
The silencer(s) exit(s) must be horizontal and situated within the perimeter of the vehicle defined by the chassis, body panels, roll cage and mud flap brackets.

The exits of the exhaust system must be visible from outside. The extremity of the silencer(s) must not pass the vertical tangent of the rear tyres.

The edges of the silencer(s) shall be rounded (straight, sharp cuts are not permitted).

All the exhaust gases (with the exception of the gasses coming from the wastegate) must pass through the silencer(s). Exhaust fumes must be discharged towards the rear but not in such a manner as to raise dust, foul the tyres or brakes.

Only the original (standard) installed exhaust valve systems provided by the manufacturer is authorized.

m) Heat shielding of the exhaust system
Heat shielding elements on the exhaust system or on components in close proximity to the exhaust system are authorized, but must be removable.

n) Coolant radiator
The position of the coolant radiator is free but forbidden in the cockpit. The fans and their position are free, as are their electric looms.

Hot air shall be directed away from the driver/passenger's compartment.

o) Coolant lines
The expansion chambers are free, provided that the capacity of the new chambers does not exceed 2 liters and that they are not located in the cockpit.

The liquid cooling lines external to the engine block and their accessories are free.

p) Lubrication system

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

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

If the lubrication system includes an open type sump breather, it must be equipped in such a way that the oil flows into a catch tank (minimum capacity: 1 liter).

The fitting of one or several ventilators for cooling the engine oil is authorized, provided that this does not have any aerodynamic effect.

q) Oil sump

Identical to the standard vehicle / no modification authorized.

r) Accessories

Except for the components mentioned in Art. 91.17 Lubrication System, the following accessories must derive from a homologated vehicle engine or from a commercial catalogue and be available for sale to the public:

- alternator
- air conditioning compressor
- air compressors
- fuel pumps
- hydraulic pumps

The number and position of these accessories are free provided that they remain within the engine compartment and/or within the main structure of the vehicle. They may not be placed within the cockpit area. Their method of operation drive systems is free.

Local machining and/or welding of an accessory is permitted for its fitting and/or function.

2.5.1 ELECTRICAL EQUIPMENT

a) Wiring loom & Fuses

All wiring loom (using appropriate size and diameter) and fuses are free.

b) Circuit breakers

Circuit breakers may be freely changed vis-à-vis regarding their use, position, or number in the case of additional accessories. The general circuit breaker must be a spark-proof model and must cut all electrical circuits, battery, alternator or dynamo, lights, horns, ignition, electrical controls, etc. and must also stop the engine.

At least two circuit breakers must be installed:
One inside the cockpit: It must be accessible from inside the vehicle by the driver and the co-driver seated and secured by their safety harnesses

c) Battery

Number

Identical to the standard vehicle / no modification authorized.

Type
The make, capacity and cables of the battery are free. The nominal voltage must be the same or lower than that of the standard vehicle. The minimum weight of the battery is 3 kg.
Location
The location of the battery(ies) is free, but the battery must be of the dry type if it is in the cockpit.
Fixation
Each battery must be securely fixed and the positive terminal must be protected.

Should the battery be moved from its original position, it must be attached to the body using a metal seat and two metal clamps with an insulating covering, fixed by bolts and nuts.

For attaching these clamps, metallic bolts with a diameter of at least 10 mm must be used, and under each bolt, a counter plate at least 3 mm thick and with a surface of at least 20 cm2 beneath the metal of the body panel.

Wet batteries can be used, but must be placed and covered in a leakproof box, attached independently of the battery. The box must be attached independently to the chassis. The securing system must be able to withstand a deceleration of 25 g.

d) Starter
Location
Identical to the standard vehicle / no modification authorized.
Make and type
Identical to the standard vehicle / no modification authorized.

e) Data acquisition system
A competitor data recording system is authorized, but only the following sensors are allowed:

- sensors fitted on the reference vehicle
- temperature sensors (engine oil, engine water, gearbox or CVT)
- pressure sensors (1 oil and 1 fuel)
- 1 engine knocking sensor (only if fitted on standard engine)
- 1 fuel level gauge for each fuel tank
- any sensors necessary for the navigation system allowed by the supplementary regulations of the competition
- wheel speed sensors (maximum 2), only on driven wheels.

2.5.2 SUSPENSION

a) Suspension type
It is forbidden to use active suspension (any system which allows control of flexibility, damping, height and/or attitude of the suspension when the vehicle is in motion).

b) Wishbones/suspension arms
Suspension triangle arms are free, but must remain interchangeable with those of the standard vehicle and must be manufactured in steel. No modifications to their respective mounting points on the chassis are permitted.

c) Joints (wishbones/links and suspension parts)
Rubber, ball joint, plain bearing, bearings (ball, roller, needle) : free

d) Hub=carriers/wheel bearings/wheel hubs
Identical to the standard vehicle / no modification authorized.

e) Springs and shock absorbers
Only one shock absorber per wheel is authorized. Shock absorbers are free but their mounting points to the chassis must remain identical as on the reference vehicle.

Any adjustment of the springs and/or shock absorbers from the cockpit is forbidden. Adjustment is only possible when the vehicle is not in motion and only with the use of hand tools. The adjustment device must be situated on the shock absorber or its gas reserve.

Any connections between dampers are forbidden, the only connections permitted are the shock absorber fixing points passing through the chassis; these must have no other function.

f) Springs
A coil spring may be replaced with two or more springs of the same type, concentric or in series, provided that they can be fitted without any modifications other than those specified in this article.

g) Antiroll bars / fixings
Free, but only one antiroll bar per axle is permitted.

The adjustment of the antiroll bars from the cockpit is forbidden.

The antiroll bar systems must be exclusively mechanical, with no activation or deactivation possible.

Any connections between front and rear antiroll bars are forbidden.

2.5.3 WHEELS
The fitting of air extractors on the wheels is prohibited.

a) Rim
The diameter of the wheel rim is set at a maximum of 15''.

The rims and bead lock devices must be made of steel or aluminum alloy.

Wheel trims are forbidden

b) Tyres
The tyres must be off-road type with a maximum diameter of 770 mm (complete wheel) measured at 1,2 [bar] and dismounted from the vehicle.

The use of tyres intended for motorcycles is forbidden.

The fitting of intermediate parts between the rims and the tyres is forbidden. The use of tyre balls or tyre blocks is forbidden.

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

Modifying the tyre is not authorized. It is forbidden to treat tyres with chemicals, cut or groove them, use tyre warmers or any other means which may alter the shape, minimum Shore hardness, construction or other characteristics.

Only tyres normally available from commercial or retail sources are authorized. The tyres shall appear on the tyre manufacturers range catalogue and tyre specification lists available to the general public.

The E approval mark and number as defined by the UN Vehicle Regulation R75 must be present on both the front and rear tyres sidewalls. The DOT approval mark is also accepted.

The maximum gap between two adjacent tread blocks in any plane perpendicular or parallel to the tread is 15 mm.

The maximum height for the tread blocks is 15 mm.

These measures do not apply to a width of 30mm from the sidewalls and on each side. Tread blocks shall not protrude directly from the sidewalls of the tyre.

c) Fixation

A bolted “Beadlock” device is allowed.

Central nut wheel fixing is forbidden.

Wheel fixations by bolts may be freely changed to fixations by pins and nuts.

The wheels do not have to be of the same diameter.

Hub and nut protections are permitted.

d) System for inflating / deflating the tyres

The use of any system for inflating / deflating the tyres when the vehicle is in motion is forbidden.

The inflating / deflating operation must only be carried out while the vehicle is not in motion. The only system authorized is a system connected to the wheels through a flexible tube during the operation and connected to one valve per wheel.

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

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

The system may be fed by a 12V electric compressor and/or by compressed air bottles.

e) Compressed bottles

If the system to inflate the tyres is composed by compressed air bottles it must follow these restrictions:

- Maximum capacity 3 liters each
- The mountings must be able to withstand a deceleration of 25 g
- Must not be situated in the cockpit.
- Must be positioned transversally in the vehicle
- Secured by at least two metal strap each

f) Spare wheel

The vehicle must be fitted with minimum one, maximum 2 spare wheel, free positions.

2.5.4 BRAKING SYSTEM

a) Control system

The pedal must normally control all the wheels and it is activated and controlled only by the driver. It includes at least two independent circuits operated by the same pedal (between the brake pedal and the calipers, the two circuits must be separately identifiable, without any interconnection other than the mechanical braking force balancing device).

The pressure is identical on the wheels of the same axle, with the exception of the pressure generated by the handbrake.

b) Brake disks

All the wheels must have a brake disk. The discs must come from a series vehicle or from a catalogue of competition parts. Their maximum diameter is set at 290 mm.

c) Calipers

The calipers must come from a series vehicle or from a catalogue of competition parts with a maximum of 4 pistons. Mounting spacers for brake calipers is free

d) Master-cylinders and tanks

Free

e) Proportional valve

Free

f) Pedal box

Original / No modification allowed

g) Handbrake

Free

If the original vehicle is fitted with a handbrake, the function must be kept.

2.5.5 STEERING

a) General

The link between the driver and the wheels must be mechanical and continuous.
4-wheel steering is prohibited.

b) Steering wheel

The steering wheel may be removable from the steering column through a quick release mechanism. This mechanism must consist of a flange concentric to the steering wheel axis, coloured yellow and installed on the steering column behind the steering wheel.

The release must be operated by pulling the flange along the steering wheel axis. Push buttons and switches may be fitted.

c) Steering mechanism

Identical to the standard vehicle / no modification authorized.

d) Steering mechanism position

Identical to the standard vehicle / no modification authorized.

e) Steering rods / Steering joints

Free but must be interchangeable (without modification) with those of the standard vehicle.

f) Steering column

Free but if the reference vehicle is must be fitted with an unmodified OEM (Original Equipment Manufacturer) energy absorbing device, it must be kept (without modification).

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

g) Support / steering column

Free

h) Power steering

Identical to the standard vehicle / no modification authorized.

i) Oil cooling

Oil radiators, as well as a system for circulating the oil without generating pressure, are authorized.

j) Oil tank

Free

2.5.6 FIRE EXTINGUISHERS

a) General

All vehicles must be fitted with one or two manual fire extinguishers. It must be possible to activate the fire extinguishers by the occupants or by fire/rescue services

The following information must be visible on each extinguisher:

- Capacity
- Type of fire extinguisher

- Weight or volume of the fire extinguisher
- Date the fire extinguisher was checked, which must be no more than two years after either the date of filling or the date of the last check, or corresponding expiry date.

b) Permitted fire extinguisher

Any fire extinguisher serviced in 2023 and not used.

c) Minimum quantity

- Powder 2.0 kg
- CO2 2.0 kg

d) Pressure

All extinguishers must be pressurized according in accordance with the manufacturer's instructions except for powder extinguishers with a pressure of 8 [bar] minimum and 13.5 [bar] maximum.

e) Location

All extinguishers must be adequately protected. The container may also be situated in the luggage compartment on condition that it is at least 300 mm from the outer edges of the body panel in all horizontal directions.

f) Fixation

It must be secured by a minimum of 2 screw-locked metallic straps and the securing system must be able to withstand a deceleration of 25 g.

Furthermore, only quick-release metal fastenings, with metal straps, are accepted. The material of the securing system must operate within the -15°C to +80°C temperature range.

g) Triggering

The means of triggering must be marked with a letter "E" in red inside a white circle of at least 10 cm diameter with a red edge.

h) Nozzle

The injector nozzles shall be free of sharp, sharp contact and its nozzles shall not be facing towards the occupants.

2.5.7 LIGHTS

a) General

The lighting equipment must be approved according to road standard

All the lighting equipment must be maintained in perfect working order throughout the entire duration of the competition.

b) Mandatory lights

Each vehicle must be fitted with at least:

- headlights
- front lamps
- rear lamps
- stop lights

- 4 flashing indicators, two at the front and two at the rear
- additional red rear fog lamps twinned or placed side by side with a minimum height of 1.25 [m] from the ground attached to the outside of the vehicle.

2.6 DRIVER AND CO-DRIVER EQUIPMENT

The compulsory clothing equipment per occupant is: fire retardant suit, fireproof boots, hood and fireproof gloves.