

## 2024 Technical Regulations for Gypsy Challenge

The Following Articles of 2024 FMSCI Appendix J are applicable

Art.251 – Classification and Definitions

Art.252 – General Prescriptions for Production Cars(Group N), Touring Cars(Group A)

Art.253 – Safety Equipment (Groups N, A)

Art.254 – Specific Regulations for Production Cars (Group N)

All modifications are forbidden unless expressly authorized by the regulations specific to the group as mentioned below.

It is permitted to use after-market replacement parts as long as such parts are in conformity with the homologated parts vis dimensions and working principle(including of Optional variants in Group N) in ALL ASPECTS except the brand name. Such parts should have no additional functions relative to the original parts.

No modifications are permitted to the original body and chassis of the Homologated/TDF vehicle (unless specifically authorised in the regulations below).

### Art.1 – Eligible Vehicles & Classes

FMSCI Homologated / TDF GYPSY'S – with Engines made by the same Manufacturer - UP TO 1650cc and permitted modifications, following the regulations written below (eg . Esteem, Gypsy, Baleno, SX4 etc).

### Art.2 – Dimensions & Minimum Weight

Track width is FREE.

Minimum weight:

1. Cars must have at least the weight appearing on the Homologation Form.
2. This is the real weight of the empty car (without persons or luggage aboard) without tools or jack, and with a maximum of one spare wheel.
3. When two spare wheels are carried in the car, the second spare wheel must be removed before weighing.
4. All the liquid tanks (lubrication, cooling, braking, heating where applicable) must be at the normal level foreseen by the manufacturer, with the exception of the windscreen wiper or headlight wiper, brake cooling system, fuel and water injection tanks, which must be empty.
5. Additional headlights which do not appear on the Homologation form must be removed before weighing.
6. In rallies only, the minimum weight of the car (under the conditions of Article 2(point 1 to 5) with crew (driver + co-driver + the full equipment of the driver and co-driver) must be :  
Minimum weight defined in Article 2(point 1 to 5) + 160 kg. Furthermore, the weight defined in Article 2(point 1 to 5) must also be respected.

It is permitted to complete the weight of the car by one or more ballast weights provided that they are unitary blocks, rigidly fixed by means of tools on to the floor of bodyshell / chassis in a location clearly visible to the scrutineers, with the provision for sealing.

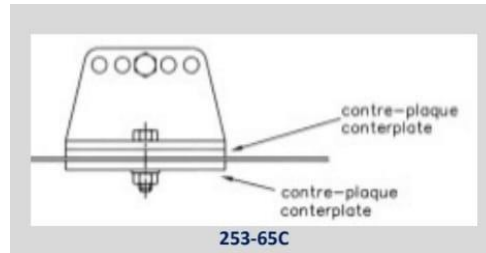
Maximum mass of a single ballast is 30kgs, Maximum mass of ballast at each mounting location is 30kgs and must respect drawing 253-65C.

Ballast must only be made of lead(**no other materials**).

The ballast must be attached to the bodyshell/chassis at least at two fixing points by bolts of at least grade 8.8 with a minimum diameter of 10mm, with counter plates, according to the principle of Drawings 253-65C.

Any movable ballast system is forbidden.

The ballast should not have any sharp edges and all the edges must have a minimum radius of 5mm.



The minimum area of contact between bodyshell /chassis and counter plate is 40cm<sup>2</sup> for each fixing point.

Failing to meet the required weight regulations will result in disqualification or exclusion of the car

The Organisers/Technical Delegate have the right to weigh the cars at any time during the event.

## Art.3 – Engine

### 3.1-Engine & Gearbox Mounting

Engine & Gearbox mounts free.

Gearbox & Engine mounts and their numbers are free.

The material of the elastic part may be replaced.

Mountings and their anchorages on the body shell may be modified. The number of mountings may be modified.

### 3.2-Compression Ratio

Compression ratio FREE

### 3.3-Cylinder Block

For the sole purpose of being able to fit the OE gearbox, local external machining of the engine block is allowed. A spacer may be added to accommodate the fitment.

The OE Engine block must be retained as Homologated/TDF.

### 3.4-Maximum Bore Allowed

Re boring of 0.5mm maximum is allowed in relation to the original bore.

### 3.5-Piston

Piston FREE.

### 3.6-Connecting Rod

Connecting rod FREE

Must be made of steel.

### 3.7-Crank Shaft

Crankshaft Balancing is permitted. Forged Steel crankshafts are permitted.

The make and material of the shell bearings and thrust bearings are free.

All engine pulleys are free along with the drive belt.

### 3.8-Flywheel

Flywheel FREE. Diameter of the starter ring and the number of teeth must be retained. Only steel or Aluminium alloy or a combination of both is permitted. No exotic materials are permitted (Titanium, composites, etc).

### 3.9-Cylinder Head Assembly

FREE. Twin CAM heads are permitted, even if it was not an OE component (includes all mechanical components within the cylinder head assembly).

Cylinder head gasket is FREE.

### 3.10-Fuel Injection System & Throttle body

Fuel Injection system:

Injectors may be modified or replaced in order to modify their delivery, but without modifying their working principle, nor their mountings.

Blow off valves and fuel pressure regulators are FREE

Throttle body:

Throttle body FREE, but limited to only one in number.

### 3.11-Sensors & Actuators

Sensors and Actuators are FREE.

### 3.12-CAM Shaft

**CAM shaft FREE**

### 3.13-Intake & Exhaust Valves

Except TITANIUM, any other material may be used in the valve train.

Components of valve train assembly FREE.

### 3.14-Intake Manifold

Intake manifold FREE

Relocation of the fuel injectors are permitted.

Air filters and its plumbing FREE.

### 3.15-Exhaust System

FREE

### 3.16-Ignition System

**Ignition system FREE**

### 3.17-Cooling System

A larger radiator may be fitted, the mounting points may be changed to accommodate the same, so long as it remains in proximity to the original radiator.

Radiator screens are FREE.

Cooling fans are FREE.

Water pump FREE (Mechanical / Electrical)

The original Radiator cowl may be modified to accommodate a larger radiator and the intercooler. Holes may be made (free of size and shape) in the front bumper/front body work/front grill, provided these are meant for the sole purpose of cooling the radiator/intercooler or brakes. However the minimum weight of the car should be respected.

### 3.18-Lubrication System

The oil radiator, oil/ water exchanger, lines, thermostat and pump strainers (including the number) are free without modifying the bodywork. The oil radiator cannot be situated outside the bodywork.

The oil gauge is free but must be present at all times. It may be moved from its original location. Fitting of an oil filter is mandatory and the entire oil flow must pass through this filter or cartridge. An adaptor between the oil filter and the oil filter housing or between the oil filter support and the engine block is permitted. The adaptor may also have oil cooling and temperature and / or the pressure sensor connections. Fitment of baffles in the oil sump is permitted. The oil pump may be modified. The flow rate may be increased relative to the original. Fitting of oil pump chain tensioner is permitted. The drive system to the oil pump is free. The oil pressure regulation system may be modified. The oil pressure accumulator is free.

### 3.19-Induction System

Induction system(Turbo charger) FREE, but not the numbers, limited to only one in number. Supercharging/Turbocharging a Homologated NA car is permitted.

All turbo's must be fitted an air restrictor(**34mm for 2 valves** per cylinder and **32mm for more than 2 valves** per cylinder)and must be according to the drawing in FMSCI- ARTICLE 254 (254-4). Holes must be provided for the purpose of sealing.

- **RESTRICTOR DESIGN- AS PER IN ARTICLE 254, DRAWING NUMBER 254-4 OR FOLLOWING THE REGULATIONS BELOW**

The restrictor design is free provided it complies with the points mentioned below.

1. All the air fed through the turbo and to the engine must pass through the restrictor only. The Technical Delegate may insist on the competitor to reveal all the air flow to the engine.
2. Any air found to bypass the restrictor, by way of a leak, intentional or unintentional, shall be considered as non conformity.
3. The restrictor internal diameter shall be a maximum of 30mm (**As per ART 4.2**) and this diameter has to be maintained for a minimum length of 3mm, unless otherwise stated in the regulations.
4. This diameter must be complied with, regardless of the temperature conditions.
5. The maximum distance, inclusive of the restrictor minimum length (3mm) shall be no more than 150mm from the outer most upstream extremity of the blades of the compressor wheel.
6. The fitment of the restrictor housing must be by way of bolts, on to the turbo housing. Threading the original housing for bolting the restrictor is permitted. The restrictor housing must be fitted, by using an intermediate 'O' ring, to ensure proper sealing. The technical delegate will verify the fitment, when the sealing is done. Removal of the restrictor housing may be necessary to satisfy the scrutineers of the method of sealing of air intake into the turbo. Additional sealing methods are permitted. Failure of the sealing methods used, which could allow additional air bypassing the restrictor, will lead to nonconformity.
7. Fitment of the restrictor housing by way of grub screw is not permitted.
8. Holes for sealing must be provided in at least two of the bolts of the restrictor housing, adjacent to one another, which would ensure that the housing can never be removed without cutting the seal and removal of bolts.

9. Sealing of the compressor housing to the body of the turbo will be done by sealing two adjacent bolts. One seal may be used to seal all the four bolts (2 Bolts for Restrictor to turbo housing and the 2 bolts for turbo housing to the main body).
10. The diameter of the holes provided for sealing in the bolts shall be no more than 3 mm
11. It will be duty of the competitor to ensure the sealing is done in a way which will not allow removal of the sealed components without breaking the seals.
12. The restrictor must be made from a single material and may be pierced solely for the purpose of mounting and sealing.

Inter Cooler:

Intercooler FREE

Ducts and the pipes of the supercharging system are free, but their only function must be to channel air and to join various parts together. The intercooler and its components must be in the engine bay or ahead of the radiator provided it is within the bodywork of the car. Ducting for the intercooler is permitted through the bumper, front grill. Holes may be cut out to allow air to pass. Water spray system may be adopted.

The original Radiator cowl may be modified to accommodate a larger radiator and the intercooler. Holes may be made (free of size and shape) in the front bumper/front body work/front grill, provided these are meant for the sole purpose of cooling the radiator/intercooler or brakes. However the minimum weight of the car should be respected.

#### Art.4 – Fuel Circuit

Fuel FREE

##### 4.1-Fuel Tank

Additional fuel tank is permitted

The fuel tank capacity is FREE.

The OEM fuel tank may be replaced with any other OEM fuel tank, provided the original seam welding remains untouched.

The filler cap must be located on the body (external) and must have a breather/vent, and located where it is open to atmosphere. All fuel lines are free.

From 01.06.2024

~~Additional fuel tank is permitted~~

~~The fuel tank capacity is FREE.~~

~~The OEM fuel tank may be replaced with any other OEM fuel tank, provided the original seam welding remains untouched.~~

~~The filler cap must be located on the body (external) and must have a breather/vent, and located where it is open to atmosphere. All fuel lines are free.~~

As supplied by manufacturer, as per Homologation/TDF

Or

As per FMSCI Appendix-J Art 253-Art.14.

Or

FIA approved Safety Fuel Tanks

Must be equipped with an FT3-1999, FT3.5-1999 or FT5-1999 safety fuel tank.

Modifications necessary for its installation must not exceed those allowed by Articles 254 of the FMSCI Regulations.

## 4.2-Fuel Pump

Fuel pump FREE

## Art.5 – ECU, Wiring Harness & Electrical Equipment

### 5.1-ECU & Wiring Harness

FREE- including the wiring harness  
Location of the ECU may be changed.

### 5.2-Battery

Its allowed to modify the battery location from the existing location inside the engine compartment.

## Art.6 – Power Train

### 6.1-Driven Wheels

2 or 4 Wheel Drive Gypsy cars are permitted

### 6.2-Clutch

Clutch Assembly FREE  
The master cylinder is FREE

### 6.3-Gearbox

Only the internals of the OEM Gearbox is FREE  
Gear Ratios FREE  
Linkages are FREE.  
Internals of the Transfer Gearbox is FREE as long as it remains within the OE housing.  
Machining of the internal part of the housing is permitted.

### 6.4-Differential

Final drive ratio FREE  
The OEM housing has to be retained.  
Strengthening of the differential housing is permitted.

### 6.5-Transmission Shafts

Transmission shafts FREE

## Art.7 – Axles & Suspension

### 7.1-Suspension System

Front and Rear springs are FREE, so long as the OE mounting points remain the same as OEM.  
All silent blocks are FREE

Shock Absorber:

Shock Absorbers FREE, along with their numbers. The shock absorber mounting points may be changed.

Suspension travel limiters are allowed.

Ride Height:

Ride height FREE

## 7.2-Axle Assembly

Strengthening of front & rear axle housing by addition of material is permitted.

## 7.3-Stabilisers/Torsion bar

Front & rear anti-roll bars are FREE, The anti-roll bars homologated by the manufacturer may be removed or disconnected.

## Art.8 – Running Gear

All silent blocks are FREE

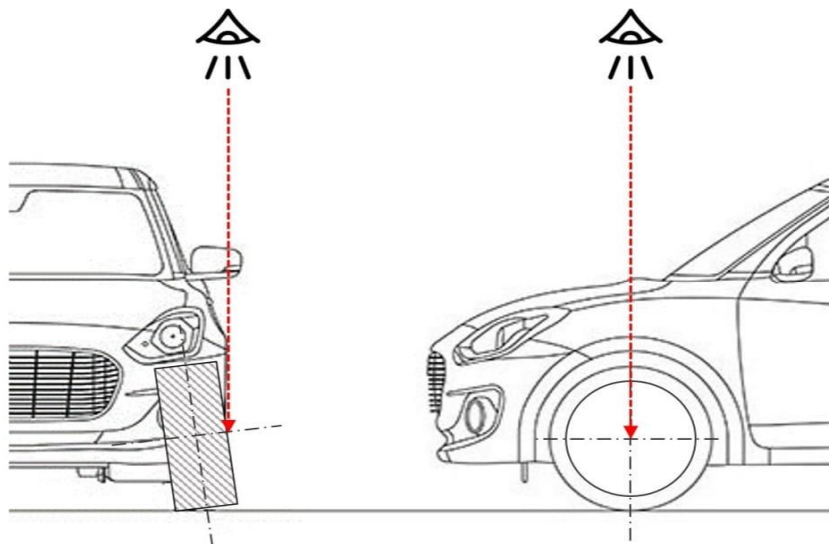
### 8.1-Wheels(Rims & Tyres)

Rims are FREE

The spare wheel(s) is (are) not mandatory and if carried it must be securely fixed.

Spacers for wheel rims are permitted.

No portion of the tyre above the centre line must be visible when viewed from the top(see drawing 8.1-1)



8.1-1

### 8.2-Wheel Assembly(Hub & Knuckle)

As supplied by manufacturer, as per Homologation/TDF

### 8.3-Brake System

- Original apertures in the body work, e.g., for fog lamps, may be used to bring cooling air to the brakes; the connection of the air ducts to the original apertures in the bodywork is free.
- If the car does not have any original apertures, two circular apertures of a maximum diameter of 10 cm, or equivalent section, may be made in the front bumper.
- A device for scraping away mud which collects on the brake discs and / or the wheels may be added.
- A device to protect the brakes from flying stones may be added.
- Servo brakes- FREE
- Brake linings- material and mounting method (riveted or bonded) are FREE provided the dimensions of the linings are retained.
- Brake rotors are free as long as they are housed within the wheel rim.
- Pedal box - FREE or the original may be modified.



- Tandem Master cylinder - FREE.
- Front and rear pressure regulator / limiter- FREE.
- Handbrake – FREE. It is permitted to modify / replace the hand brake provided it remains on the central tunnel. Dual rear handbrake (standard one and Hydraulic system) is permitted.
- Front callipers- FREE. The calliper support is FREE.
- Its allowed to disable the automatic rear brake adjuster.

#### **8.4-Steering System**

Hydraulic power system are permitted even if it is not OEM.

The driving pulleys and the position of the hydraulic power steering system are FREE.

Steering rods are FREE

Steering column -FREE

Steering wheel - FREE, the original locking system of the anti-theft lock may be rendered inoperative.

Steering fluid tank - FREE

#### **Art.9 – Body Work**

A HARD TOP COVERED, FIXED BODY, HOUSING THE DRIVER AND CO-DRIVER IS MANDATORY

The tail gate may be removed.

#### **9.1-Interior**

1. All plastic claddings inside the passenger compartment can be removed.
2. The original dashboard must be retained.
3. Door pads may be replaced with fabricated ones.
4. All parts of the AC/heating system may be removed.
5. The dashboard may be modified to accommodate the fitment of roll cage, navigational instruments etc.
6. Floor carpets are free and may thus be removed.
7. All sound proofing materials may be removed.
8. Fixing of dead pedals for driver comfort are permitted.

#### **9.2-Exterior**

1. The rear windshield glass may be replaced with fixed Perspex / acrylic sheets, so long as the transparency of the original glass is maintained and fixed with bolts or rivets.
2. Front and rear wheel arches – FREE. (So long as the wheel does not protrude beyond the wheel arch, when viewed from top, same method of measurements as in FIA-Group A). It is permitted to fold back the metal edges or reduce the plastic edges of the fenders and bumpers if they protrude into the wheel housing. TRACK WIDTH IS FREE.
3. Bonnet Vents/Scoops FREE. These modifications are limited to the bonnet only. This will be in addition to the roof scoops for the driver and navigator.
4. Modifications are permitted to the bonnet to accommodate the turbo and its plumbing.
5. It is permitted to replace the OEM Bumpers with Fibre glass replicas, provided the shape is identical to the OEM component.
6. It is permitted to replace the OEM door rear view mirrors with any aftermarket mirrors, so long as the Rear-view visibility is equal to or more than the OEM mirrors.
7. The capacity of the windshield water tank is free.
8. Additional safety fastenings for the windscreen and side windows are permitted.



9. The bumper mountings are free so long as the original shape of the bodywork and the bumper remain the same.
10. Bumpers / Grills / Headlights and Fender Inner Linings may be interchanged with different models of the same car.
11. Cooling Ducts / Vents are permitted with in the Bumper and on the Bonnet to enable Cooling / Venting of the Engine compartment and Brakes.
12. Under body protection is permitted.
13. Windshield washer container is FREE, it is permitted to relocate the windshield washer water container within the space under the bonnet.

## Art.10 – Safety Requirements

As per 2024 FMSCI Racing Regulations Appendix-J Art 253 Safety Equipment (Group N, A) and As per FMSCI 2024 Safety Requirements for 4Wheeler.

### 10.1-Driver Safety Equipment

As per FMSCI 2024 Safety Requirements for 4Wheeler.

Its highly recommended to use FHR

From 01.01.2025 its mandatory to use FHR along with Helmets compatible to use with FHR as per FIA standards.

### 10.2-Roll cage

As per 2024 FMSCI Racing Regulations Appendix-J Art 253 Safety Equipment (Group N, A) Art-8.Safety Cages

### 10.3-Seat & Seat Belt

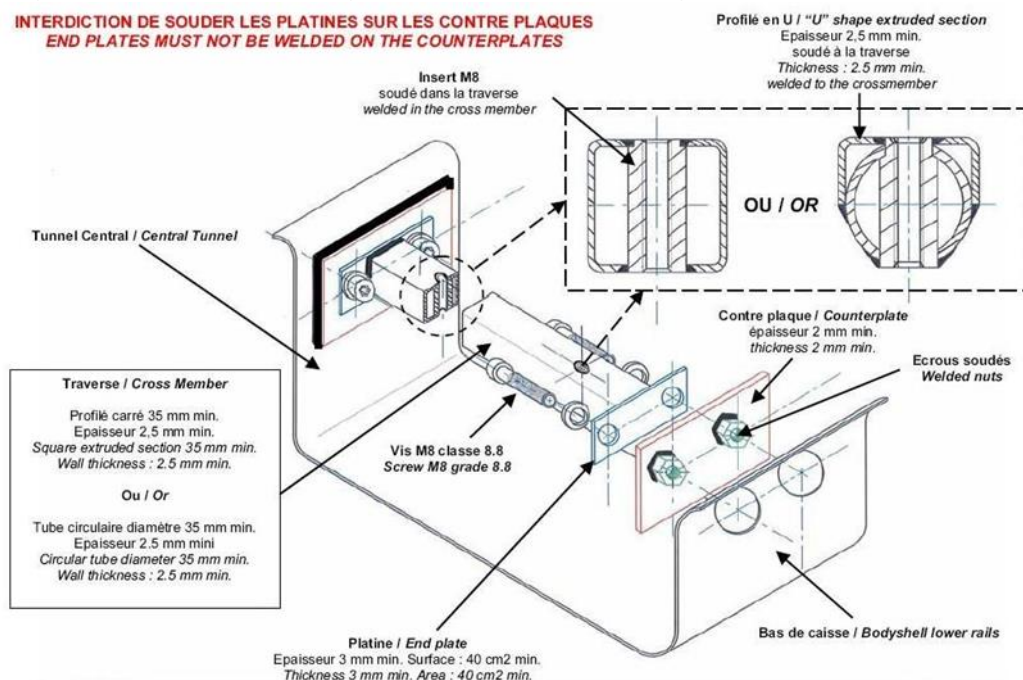
As per FMSCI 2024 Safety Requirements for 4Wheeler.

From 01.06.2024 Seat Anchorage point and Seat support must only as per the following methods

1) If OEM seat anchorage points are not used(seat support must be fixed on to the cross member):

It must follow the drawing 253-65B of FMSCI Art 253-Safety Equipment(Group N, A)

The seat support must be fixed on to the anchorage points of cross member for fixing seats via at least 4 mounting points per seat, using bolts minimum M8 of grade 8.8



253-65B

### FITTING INSTRUCTIONS

- 1- Drill holes (larger than nut outer diameter) in the bodyshell lower rail and in central tunnel wall.
- 2- Weld the nuts on the counter plates, then weld these on the bodyshell lower rail on the central tunnel wall.
- 3- Weld the 2 threaded inserts in the cross member, then weld the endplates at each end of the cross member.
- 4- Fix the assembly through 4 number of M8 bolts of grade 8.8 which are screwed in the welded nuts.

2) If OEM seat anchorage points are used on to fix the seat supports directly onto the shell/chassis:

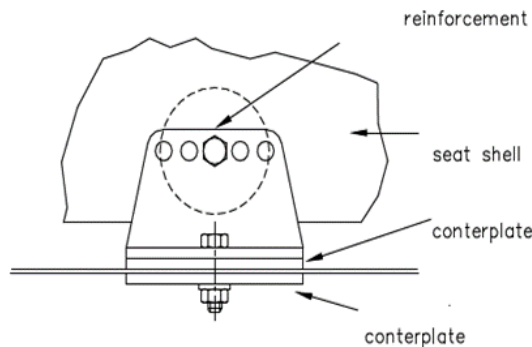
It must follow the drawing 253-65 of FMSCI Art 253-Safety Equipment(Group N, A)

The seat supports must be attached directly to the OEM seat anchorage points on the body shell/chassis via at least 4 mounting points per seat using bolts with minimum M8 of grade 8.8 and counter plates, according to the Drawing 253-65.

The minimum area of contact between support, shell/chassis and counter plate is 40 cm<sup>2</sup> for each mounting point.

The minimum thickness of the seat 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.



253-65

### 10.4-Fire Extinguisher

The minimum Quantity of Extinguishant for system mounted(plumbed in system) must be 3kg.

Manual Extinguishers

Minimum Quantity of Manual Extinguishant:

- AFFF 2.4liters
- FX G-TEC 2.0 kg
- Viro 3 2.0kg
- Zero360 2.0kg
- Powder 2.0kg

Fire Extinguishers to be rigidly fastened with a quick release clamps (minimum 2 nos.) fitted in an easily accessible and a visible position. The mounting bracket of the fire extinguisher must be bolted to the floor with a bolt of minimum 10 mm diameter. The minimum bracket thickness-2mm MS SHEET METAL

### 10.5-Protective Padding

Where the occupant's bodies could come into contact with the safety cage, flame retardant padding as per FMSCI 2024 Safety Requirements for 4Wheeler must be provided for protection.

**Art.11 – Data Acquisition**

Fitting of additional Sensors are allowed, for data acquisition.

**Art.12 – Hybrid System**

Not applicable

**Failing to meet the above required regulations will result in disqualification or exclusion of the car for the relevant session(s).**

Note: Other than the modifications permitted expressly above should follow 2024 Group N Technical Regulations FMSCI Art 254.

Note: If any ambiguity or missing data from the Homologation / TDF form, the FMSCI may source any component from the OE manufacturers to compare dimensions.

***NOTE: Changes for the 2024 Technical Regulations are highlighted in Yellow***

**\*\*END\*\***