

# CROSS-COUNTRY TRUCK TECHNICAL REGULATIONS (GROUP T4)

(BASED ON FIA REGULATIONS – APPENDIX J – ARTICLE 287)

## ART. 1 GENERAL

### 1.1 Authorised modifications

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

The only work which may be carried out on the vehicle is that which is necessary for its normal maintenance, or in replacement of damaged parts.

The limits of the authorised modifications and assemblies are specified below.

Outside these authorisations, any damaged part may only be replaced by an original part identical to the damaged part.

The vehicles must be strictly series production and identifiable from the information given in the articles of the documents listed in Article 2.3.

## ART. 2 ELIGIBILITY

### 2.1 General

The present technical regulations govern competitions between 2- to 4-axle trucks.

With the exception of the authorised modifications specified in these regulations, the vehicles must comply with a FIA homologation form for Group T4.

Optional equipment or additional accessories which do not modify the vehicle's performance are authorised.

### 2.2 Eligible vehicles

Series production 2- to 4-axle trucks (chassis-cab) produced by a recognised constructor, with a permissible total laden weight of minimum 3500 kg and fitted with conventional bodywork are eligible.

The competitor is responsible for providing all the proof requested by the scrutineers, such that they may check that the submitted vehicle is or has been produced in series and that it is on normal sale to the public, and is homologated in Group T4.

### 2.3 Documentation

#### 2.3.1 The following documents must be presented by the competitor :

**FMSCI / FIA** homologation form or the technical dossier ratified by the FIA if the homologation of the truck is no longer valid (see Article 1.1.1 of the Homologation Regulations for Series Trucks).

Report of the annual technical inspection.

Registration certificate (the only provisional or temporary registrations permitted are those delivered by the authorities of the organising country upon request from the ASN).

## ART. 3 SAFETY EQUIPMENT

### 3.1 Safety cages

The chromium plating of all or part of the cages is forbidden.

Inside the cockpit, the passage of the following elements between the structure of the cabin and that of the load-bearing bodywork and the safety cage is forbidden :

Electric cables

Lines carrying fluids (except windscreen washer fluid) Lines of the extinguishing system.

#### 3.1.1 Cab

An internal cab safety cage must be fitted.

The basic purpose of such a safety cage is to protect the driver and passengers if the vehicle is involved in a serious accident.

Minimum acceptable safety cage requirements are detailed in these regulations but the following observations must be noted :

The essential characteristics of a safety cage come from a finely detailed construction, suitable fixation to the cab and snug fitting against the bodywork.

It is recommended that mounting feet be made as large as possible in order to spread loads over the maximum area.

It is also advisable to attach the cage to the cab structure (e.g. to the screen and door pillars) wherever possible. This greatly increases strength and rigidity.

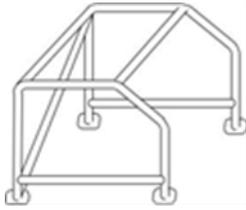
All welds must be of the highest quality possible, with full penetration (preferably arc welding and in particular under protecting gas).

A longitudinal member (door reinforcement) must be fitted at each side of the vehicle. These members may be removable.

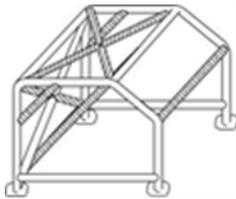
This lateral protection must be as high as possible but not higher than one third of the total height of the door measured from its base.

The requirements are a minimum.

It is permitted to fit extra elements or reinforcements in addition to the basic requirements (see Appendix J Article 283-8 and Drawings 287-1 and 287-2).



**287-1**



**287-2**

In addition to the internal safety cage, it is permitted to fit an external safety cage, subject to the following conditions :

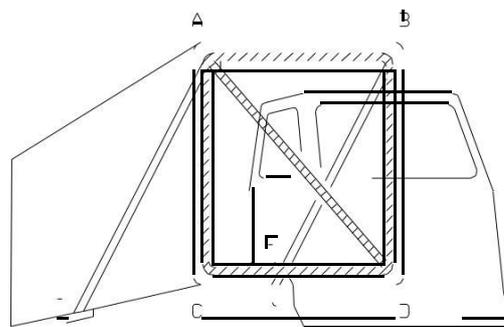
To the front, no part of the cage may extend beyond the projection of the base vehicle over the ground

No part of the external cage may project beyond the side and the upper extremities of the load-bearing bodywork of the base vehicle

To the rear, no part of the external cage may be located more than 0.5 metres behind the back of the bodywork of the cab.

### 3.1.2 Load-bearing bodywork

(see Drawing 287-3)



**287-3**

The rear part of the vehicle (the part intended to carry the merchandise) must be reinforced in front (the panel of the bodywork situated behind the cab) by a completely closed rollbar ABCD which must follow exactly the contour of the inside of the bodywork and its minimum height must be at least equal to that of the highest part of the cab or of its external rollbar (air intakes and exhaust outlets are not taken into consideration).

The rollbar ABCD must be made rigid by at least one diagonal AD or BC, but the fitting of two diagonals AD and BC is authorised.

This rollbar must be fixed on the one hand by steel plates welded to the tube and bolted to counterplates at floor level, as near as possible to corners C and D, and on the other hand, in the same fashion, to the vertical wall of the bodywork (except in tarpaulin type trucks) near corners A and B.

If the floor is not strong enough, this attachment must be carried out on the chassis.

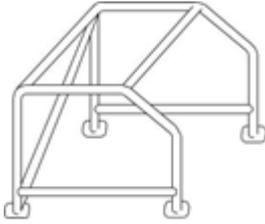
The rollbar must be held up by two rectilinear tension rods fixed at A and B and bolted to the floor of the vehicle with plates and counterplates (AE and BF).

The rollbar / tension rod assembly may be reinforced by two diagonals AF and BE.

If the floor is not sufficiently resistant, these rods must be bolted onto the chassis.

The plates and counterplates used above must have a surface area of 200 cm<sup>2</sup> and a minimum thickness of 3 mm, and be fixed by 4 bolts of 12 mm diameter.

### 3.1.3 Minimum specifications



#### 287-1

Each rollbar must be in one piece and must be free from unevenness and cracks.

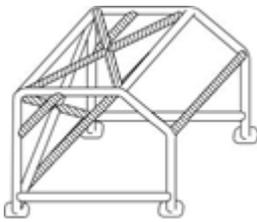
All the parts of the cage must be welded together or be connected by the connections defined in Article 283-8 of Appendix J.

#### Note

The rear diagonal must have its top fixing on the driver's side of the cab.

It is permissible, and even recommended, to fit additional struts to the cage.

An example is shown in Drawing 287-2.



#### 287-2

Such additional struts may be welded, or fixed by removable connections.

The minimum fixation of the cage to the cab consists of four mounting plates, one for each vertical pillar of the cage.

Each mounting foot must have an area of at least 200 cm<sup>2</sup> and a thickness of 3 mm.

Reinforcing plates with an area of at least 200 cm<sup>2</sup> and a minimum thickness of 3 mm must be fitted such that the cab floor is sandwiched between the mounting feet and the reinforcing plates. At least three bolts must clamp each mounting foot to its reinforcing plate, such bolts to have a minimum specification of 8.8 ("S" Grade) and diameter of 12 mm. This mounting represents a minimum.

It is permitted to increase the number of bolts and to attach the cage to the cab shell. (e.g. to windscreen and door pillars). (see texts and drawings in Appendix J, Article 283-8).

Minimum material specification for all mandatory tubes is as follows

Cold drawn seamless steel tube with a minimum tensile strength of 340 N/mm<sup>2</sup>.

Minimum permitted tube sizes are as follows :

57 mm outside diameter x 4.9 mm wall thickness or

60 mm outside diameter x 3.2 mm wall thickness or

70 mm outside diameter x 2.4 mm wall thickness

Every tube in Drawing 287-1 must have an inspection hole of 5 mm diameter, drilled in an easily visible position.

#### Note

The tube sizes quoted above are standard sizes which should be easily available.

However if one of these sizes cannot be obtained, the tube will be acceptable if its dimensions exceed the dimensions shown above ; for example 60 mm x 4.9 mm or 57 mm x 5.0 mm are acceptable in place of the 57 mm x 4.9 mm tube.

### 3.2 Cab and bonnet lock down

Vehicles with tilt cabs must have an additional device which bridges the normal tilt lock mechanism and prevents cab tilt in the event of that mechanism disengaging.

It must be fixed between the chassis and the safety cage or the cabin.

If fixed to the cabin, the fixing on the cabin side must be reinforced by one plate and one counterplate with a surface area of 200 cm<sup>2</sup> and a minimum thickness of 3 mm each, fixed by bolts of 12 mm diameter.

The weakest part of the device must be either one steel bolt or pin of at least 16 mm diameter or two steel bolts or pins of at least 12 mm diameter.

Steel cables are allowed on each side of the cab, with a minimum diameter of 12 mm (or equivalent section). They must be of a sufficient length to allow movement between the cab and the chassis.

Vehicles with bonnets must be fitted with an additional locking device, in addition to the normal bonnet lock, to prevent the bonnet from opening in case of failure of the normal lock (attachment by means of "American" steel pins).

These additional devices must be positively engaged while the vehicle is in motion.

### **3.3 Propeller shaft**

For each longitudinal transmission shaft over 1 m long, a rollbar or a safety loop made from steel must be installed close to the front extremity.

### **3.4 Wheels and tyres**

#### **3.4.1 Wheel rims, spacers**

Only iron-based alloy or aluminium alloy is authorised.

The weight of wheels in aluminium alloy must not be less than 35 kg.

The size of the rims is limited to 14 x 20 inches and the total diameter of the wheel when mounted and inflated to 5 bars must not exceed 1300 mm. The diameter must be measured on the new tyre specified by the Manufacturer.

Wheels dismountable in several parts are forbidden (except flat dismountable rim of the "metallic beadlock" type).

It is prohibited to fit any spacers or adaptors between the wheels and the hub.

#### **3.4.2 Wheel nut covers**

Wheel nut covers must be fitted to all wheels if nuts or studs extend beyond the complete wheel.

#### **3.4.3 Wheel balance weights**

It is prohibited to have removable balance weights fitted to any wheel.

#### **3.4.4 Tyres**

Any tyre which the scrutineers consider to be dangerous or in breach of the regulations, for one reason or another, shall be refused.

#### **3.4.5 Spare wheel/tyre**

A minimum of two wheels or two tyres, depending on the type of wheels used, are compulsory.

### **3.5 Isolation from engine and transmission (Firewall)**

All vehicles must have a protective bulkhead of non-flammable material between the engine/transmission and the driver's compartment capable of preventing the passage of fluid or flames in the event of fire

Gaps must be sealed.

### **3.6 Lines**

#### **3.6.1 Oil lines**

The only oil lines which may run within the cab are those leading solely to temperature and pressure gauges.

Such lines must be metallic, or be aviation type lines.

#### **3.6.2 Coolant lines**

The only coolant lines which may run within the cab are those leading to temperature/pressure gauges or the cab heater.

### **3.7 Windscreen and body glazing**

All window operating mechanisms must function as designed by the manufacturers (e.g. manufacturers' wind-down windows must remain as wind-down windows).

### **3.8 Steering lock**

Any steering lock system fitted to the vehicle must be removed.

### **3.9 Parking brake**

The location of the parking brake control must be clearly indicated by a notice inside the cab at least 20 cm in width.

The parking brake control must be operable by the driver while normally seated with the seat belts fastened.

### **3.10 Windscreen wiper and washer**

All vehicles must be fitted with at least one windscreen wiper and a washer. These must be maintained in a working condition at all times.

### **3.11 Oil catch tank**

All engine breathers venting to the atmosphere must lead into a catch tank, arranged in such a way as to prevent oil from spilling onto the ground.

If a single catch tank is used, it must have a volume of at least four litres.

It is permitted to use multiple tanks, but each tank must be at least two litres.

Tanks may be made of any material, but it must be possible to view the contents of the tank (e.g. a sight glass is required in a metal tank, and plastic tanks must be translucent).

All tanks must be capable of being readily emptied.

### **3.12 Warning triangle**

This is compulsory, in case of a breakdown or an unscheduled stop. The triangle must be placed on the track, in such a way that it is clearly visible, 100 m before the immobilised vehicle.

### 3.13 Rear view mirrors

It is permitted to fit additional rear view mirrors, but the standard mirrors must be retained and kept in working order, at all times.

## ART. 4 CHASSIS

Only local modifications of the chassis frame are permitted in order to comply with the safety requirements described in Article 3 of these regulations.

With the exception of the items covered in Article 7.1, the chassis frame must be exactly to manufacturer's standard specification.

Manufacturers' options on chassis shape and material are prohibited.

## ART. 5 BODYWORK

All parts having an aerodynamic influence and all parts of the bodywork (cabin and load-bearing bodywork) must be rigidly secured to the entirely sprung part of the vehicle (chassis), 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.

Door locks must be kept in the unlocked position while the vehicle is on the route.

### 5.1.2 Seats

The occupants' seats may be removed.

### 5.1.3 Trim

Carpet and floor coverings may be removed.  
Any loose floor coverings must be removed.

### 5.1.4 Steering wheel

A non-standard steering wheel of proprietary manufacture may be fitted.

### 5.1.5 Pedals

The pads of the pedals may be modified as long as this does not involve any lessening to their resistance.

### 5.1.6 Additional accessories

All those which have no influence on the vehicle's behaviour, for example equipment which improves the aesthetics or comfort of the cabin (lighting, heating, radio, etc.), are allowed without restriction.

In no case may these accessories increase the engine power or influence the steering, transmission, brakes, or roadholding, even in an indirect fashion.

All controls must retain the role laid down for them by the manufacturer.

They may be adapted to facilitate their use and accessibility, for example a longer handbrake lever, an additional flange on the brake pedal, etc.

Insulating material may be added to the existing bulkheads to protect the passengers from fire.

## 5.2 Cab exterior

### 5.2.1 Front bumper / Mudguards

#### Front bumper

The lower part situated forward of the wheels and outside the chassis frame may be cut out over a maximum height of 100 mm in order to avoid it being damaged when driving over rough terrain.

#### Mudguards

All vehicles must be equipped with mudguards on the rear wheels.

They must have no sharp edges and must cover the full width of the tyre over a continuous arc of 120°.

This minimum coverage must be achieved with a continuous surface of rigid material uninterrupted by any gaps, holes, slots or vents.

The mudguards must extend forward of the relevant axle centreline in vertical projection.

The trailing edge of the mudguard must be no higher than the top of the corresponding rim.

The front mudguards must remain those of the cabin of the homologated vehicle.

### 5.2.2 Winches

Only winches, fitted without making any modifications to the structure of the vehicle other than a modification allowing the winch to be attached by means of bolts, are authorised.

## 5.3 Load-bearing bodywork

### 5.3.1 Outside

Only load-bearing bodywork homologated as an Option Variant (VO) is authorised.

### 5.3.2 Inside

The transporting of "merchandise" is entirely the responsibility of the competitor. However, the Scrutineers may check the quality of the load, with regard to safety.

The transporting of certain quantities of dangerous materials is governed by official regulations.

Any dangerous liquids must be held in tanks similar to those of the vehicle (FT3-1999 safety tank or truck tank).

**ART. 6 ENGINE**

**6.1 General**

With the exception of permitted modifications detailed thereunder the engine and all ancillaries must be exactly to manufacturer's standard specification.

**6.2 Engine speed**

Maximum engine speed may be changed.

**6.3 Water cooling system**

The original number of water cooling radiator units must be retained.

They must be fitted to their original mounting points on the chassis.

However, it is permitted to change the size and shape of these radiators, as well as fans and associated piping, as long as this does not cause any change in body or chassis shape.

**6.4**

**Air induction system**

The air filter(s) and tubing upstream of it(them) may be modified.

No part of the air induction system may project more than 300 mm beyond the side or top extremities of the cab.

No more than two air induction pipes may be fitted.

The total cross-sectional area of the air induction pipes or ram air collector boxes must not exceed 1000 cm<sup>2</sup>.

The engine must be fitted with a restrictor fixed to the compressor housing of the turbocharger.

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

The maximum internal diameter of the restrictor is 74 mm, maintained for a minimum distance of 3 mm measured downstream of a plane perpendicular to the rotational axis situated at a maximum of 100 mm upstream of a plane passing through the most upstream extremities of the wheel blades (Drawing 287-4).

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

The external diameter of the restrictor at its narrowest point must be less than 80 mm, and must be maintained over a distance of 5 mm to each side.

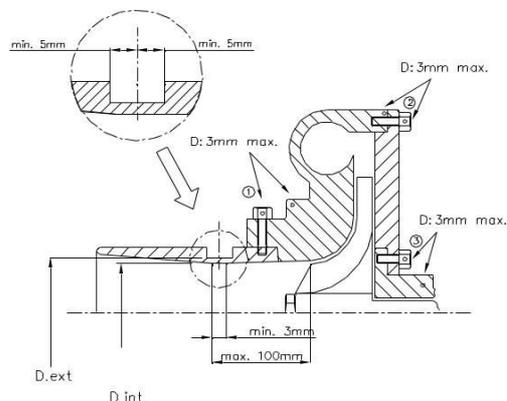
The mounting of the restrictor onto the turbocharger must be carried out in such a way that two screws have to be entirely removed from the body of the compressor, or from the restrictor, in order to detach the restrictor from the compressor. Attachment by means of a needle screw is not authorised.

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

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

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

In case of an engine with two parallel compressors, each compressor must be limited by a restrictor with a maximum internal diameter of 53 mm, and a maximum external diameter of 58 mm, within the conditions specified above



- ① Trou pour bride ou bride/carter de compression  
Hole for restrictor or restrictor/compressor housing
- ② Trou pour carter de compression ou carter/flasque  
Hole for compressor housing or housing/flange
- ③ Trou pour carter de turbine carter/flasque  
Hole for turbine housing or housing/flange

## 6.5 Fuel injection system

Only the settings on the fuel injection pump may be modified.

## 6.6 Exhaust

After the final muffler, the exhaust pipe may be modified.

A vertical exit pipe, or two at the most, may be installed.

The fitting of a particulate filter is authorised but must be submitted to the Homologation and Technical Working Group of the FIA beforehand for approval, with the presentation of a technical dossier drawn up by the manufacturer of the vehicle.

## ART. 7 SUSPENSION

### 7.1 Dampers

A maximum of four damper units are allowed per axle.

Their make and type are free, but they must have no other function than that of dampers.

If hydraulic damper units are used, there must be no interconnection between the circuits.

The damper supports are free on condition that they have no other function than that of support.

### 7.2 Rigid axles

Rigid axles may be strengthened, but in such a manner that the original parts may be recognised.

The addition of a reinforcing bar between the front axle and the chassis is authorised.

### 7.3 Springs

The number of spring leaves is free.

### 7.4 Travel limitation

Travel straps may be fitted.

The suspension travel is limited to 300 mm.

The method for measuring the travel is the following :

The vehicle must be on stands with the elastic stops and the shock absorbers or spring/shock absorber units dismantled, and with the rigid axle (or half-axles) prevented from moving downward by travel limitation straps or the lower bump stop.

The wheels must be moved simultaneously from the upper steel bump stop to the lower steel bump stop.

The travel is the vertical displacement of the wheels for a rigid axle or the average of the vertical displacements of two points of the median plane of the wheel diametrically opposed on a vertical plane for an axle with independent wheels.

## ART. 8 TRANSMISSION

### 8.1 Clutch

The clutch plates are free.

## ART. 9 ELECTRIC SYSTEM

### 9.1 Lighting system

All lamps required for normal legal road use must be functional at all times and must not be concealed.

The number of headlamps is limited to 8. They must be fitted in accordance with the International Road Traffic Convention, at a maximum height not exceeding that of the lowest part of the windscreen.

No lamp other than those provided for by the International Road Traffic Convention and the present regulations may be fitted.

### 9.2 Batteries

Vehicle batteries must be to original specification or equivalent.

They must not be positioned inside the cab.

They must be securely fastened, each battery to be held down by at least two steel bolts of 10 mm minimum diameter. They must be protected to prevent short circuiting of terminals.

Batteries must not be visible from outside the vehicle.

## ART. 10 BRAKES

### 10.1 Braking system

The entire braking system must remain original (except for Article 5.1.1.6 - Pedals).

The material and attachment system of the brake linings are free.

### 10.2 Brake cooling

Brake cooling is permitted using ducted air only.

Cooling ducts must be fed by air intakes (one per wheel) which can fit within a circle of 150 mm diameter, fixed below the axis of the wheels and not extending beyond the vertical projection of the vehicle.

## **ART. 11 WHEELS**

### **11.1 Specification**

These must be of unmodified proprietary manufacture and must be such that no part of a rim or tyre fouls on any part of the vehicle under extremes of steering or suspension movements.

The wheel nuts and studs must match the wheel rims being used, to ensure adequate fixing strength. Wheel nuts must be of unmodified proprietary manufacture.

Twin wheels may be replaced with a single wheel.

### **11.2 Rim dimensions**

Maximum allowed wheel rim width is 14".

Different rims from the original ones may be authorised by the supplementary regulations of the competition, according to the type of terrain.

### **11.3 Wheel track and vehicle width**

The combination of axles and wheels/tyres fitted must not cause the vehicle width to exceed 2550 mm, nor increase the front or rear wheel track by more than 150 mm beyond manufacturer's standard specification.

## **ART. 12 TYRES**

### **12.1 Specifications**

Maximum permitted section width : 19".

All tyres fitted to the vehicle must have a tread depth complying with relevant national legal requirements for the duration of the competition.

Re-cut and/or hand grooved tyres are not permitted.

Tyres fitted must be available through normal retail outlets for all- weather use on roads and/or tracks.

Special tread compounds and/or patterns are not allowed, nor are any externally applied chemical compounds which may affect tyre grip.

All tyres must have a speed index of "F" or more.

No carcass may have undergone serious repairs.

### **12.2 Approved manufacturers**

All tyres used must be to E.E.C. Type Approval standard (E.E.C. regulation 54) or equivalent.

### **12.3 Retreated tyres**

Retreated tyres are forbidden.

### **12.4 Inflating / Deflating**

The use of a system for inflating / deflating the tyres when rolling the vehicle is in motion is authorised.

## **ART. 13 VEHICLE WEIGHT**

The minimum allowed vehicle weight at any time is the weight of the vehicle, emptied of fuel, without persons, luggage, tools, jack, spare parts, portable survival, navigation or communication equipment, provisions, etc., but with the safety devices, and its bodywork as defined above.

It must not be less than the homologated weight of the chassis/cab, modified by the multiplying coefficient 1.33.

## **ART. 14 FUEL TANK**

### **14.1 Type**

The original tank may be retained on condition that it remains in its original position.

Additional fuel tanks are free in respect of capacity. They must be of unmodified proprietary manufacture, of a type normally used in trucks ; they must be without modification, and fully proofed against accidental fuel spillage or leakage from fillers and vents.

Filler caps must have a positive closure action and must not project beyond the line of the vehicle's bodywork.

#### Note

It is recommended to fit FT3-1999, FT3.5-1999 or FT5-1999 safety fuel tanks as described in Article 283-14, Cross Country Cars, of Appendix J.

### **14.2 Position**

Subject to the following requirements, fuel tank position is free :

All tanks must be situated within the wheelbase Tank(s) must be firmly fixed to the chassis

They must have underbody protection against flying stones and lateral protection against impact.

Tank(s) may not be fitted inside the cab.

### **14.3 Additional tanks (Other than those feeding the vehicle)**

No reserves containing fuel may be situated on the outside of the vehicle (jerrycans or other cans).

Containers for water or lubricants are tolerated on the outside of the vehicle, must be firmly secured and must not project beyond the perimeter of the vehicle.

**ART. 15 TACHOGRAPHS**

The tachographs record vehicle speed.

Competitors are reminded that any change to the vehicle which may affect the calibration of the tachograph (e.g. a change of tyre make or tyre size) must be approved by the Scrutineers.

It is specifically forbidden to conceal, or interfere in any way with, the approved tachograph or any associated wiring, cable drive or sender units.

If any change is made to the vehicle specification which may affect tachograph calibration, or if the system is interfered with in any way, it is the competitor's responsibility to have the tachograph re- calibrated and re-certified.

Failure to comply with this requirement may cause the vehicle to be rejected at Scrutineering.

Competitors are reminded that tachographs are extremely accurate measuring devices.

**ART.16 FINAL TEXT**

In the event of any dispute over the interpretation of the terms used in the various translations of these regulations, the French version will be used.

**MODIFICATIONS APPLICABLE ON 01.01.2019**

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