

**2008 Technical Regulations - III
Safety Equipment**

With effect from 1st January 2008

ARTICLE 1 :

A car, the construction of which is deemed to be dangerous, may be excluded by the Stewards of the meeting.

ARTICLE 2 :

If a device is optional, it must be fitted in a way that complies with regulations.

ARTICLE 3 : LINES AND PUMPS

3.1 Protection

Fuel, oil and brake lines must be protected externally against any risk of deterioration (stones, corrosion, mechanical breakage, etc.) and internally against all risks of fire and deterioration.

Application: Optional for Group N if the series production fitting is retained.

Obligatory for all the Groups if the series production fitting is not retained or if the lines pass inside the vehicle and their protective covering has been removed.

In the case of fuel lines, the metal parts which are isolated from the shell of the car by non-conducting parts must be connected to it electrically.

3.2 Specifications and installation

Obligatory application if the series fitting is not retained.

Lines containing cooling water or lubricating oil must be outside the cockpit.

The fittings of fuel lines, lubricating oil lines and of those containing hydraulic fluid under pressure must be manufactured according to the specifications below:

- when flexible, these lines must have threaded, crimped or self-sealing connectors and an outer braid resistant to abrasion and flame (will not sustain combustion) ;

- minimum burst pressure measured at a minimum operating temperature of:

- Fuel lines (except the connections to the injectors):

70 bar (1000 psi) 135°C (250°F).

- Lubricating oil lines :

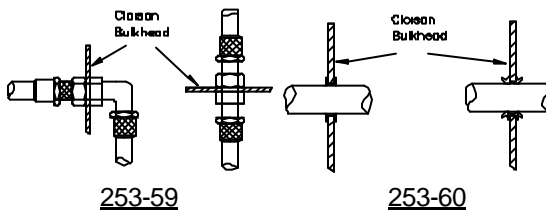
70 bar (1000 psi) 232°C (450°F).

- Lines containing hydraulic fluid under pressure:

280 bar (4000 psi) 232°C (450°F).

If the operating pressure of the hydraulic system is greater than 140 bar (2000 psi), the burst pressure must be at least double the operating pressure.

Lines containing fuel or hydraulic fluid may pass through the cockpit, but without any connectors inside except on the front and rear bulkheads according to Drawings 253-59 and 253-60, and on the braking circuit and the clutch fluid circuit.



3.3 Automatic fuel cut-off

Recommended for all groups:

All fuel feed pipes going to the engine must be provided with automatic cut-off valves located directly on the fuel tank which automatically close all the fuel lines under pressure if one of these lines in the fuel system is fractured or leaks.

Compulsory:

All the fuel pumps must only operate when the engine is running, except during the starting process.

3.4 Fuel cell ventilation XXX

ARTICLE 4 : BRAKING SAFETY SYSTEM XXX

ARTICLE 5 : ADDITIONAL FASTENERS

At least two additional safety fasteners must be fitted for each of the bonnet and boot lids.

The original locking mechanisms will be rendered inoperative or removed.

Large objects carried on board the vehicle (such as the spare wheel, tool-kit, etc.) must be firmly fixed.

ARTICLE 6 : SAFETY BELTS

6.1 Belts

For rallies, two belt cutters must be carried on board at all times. They must be easily accessible for the driver and co-driver when seated with their harnesses fastened.

Wearing of two shoulder straps and one lap strap ; anchorage points on the shell: two for the lap strap, two or possibly one symmetrical about the seat for the shoulder straps.

These belts must be homologated by the FIA

On the other hand, it is recommended that for competitions which include public road sections, the belts be equipped with push button release systems.

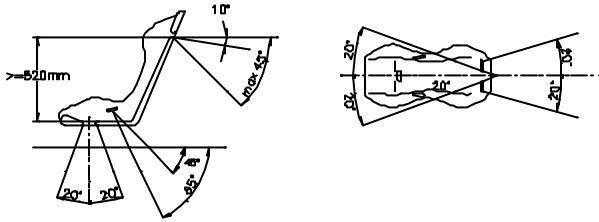
The ASNs may homologate mounting points on the safety cage when this cage is being homologated, on condition that they are tested.

6.2 Installation

It is prohibited for the seat belts to be anchored to the seats or their supports.

- A safety harness may be installed on the anchorage points of the series car.

The recommended geometrical locations of the anchorage points are shown in Drawing n° 253-61.



253-61

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 should not exceed 10°.

The maximum angles in relation to the centre-line of the seat are 20° divergent or convergent.

If possible, the anchorage point originally mounted by the car manufacturer on the C-pillar should be used.

Anchorage points creating a higher angle to the horizontal must not be used unless the seat meets the requirements of the FIA standard.

In that case, the shoulder straps of 4point safety harnesses may be installed on the rear seat lap strap anchorage points originally mounted by the car manufacturer.

For a 4point harness, the shoulder straps must be installed crosswise symmetrically about the centre-line of the front seat.

A safety harness must not be installed on a seat having no head restraint or having a backrest with integrated head restraint (no opening between backrest and head restraint).

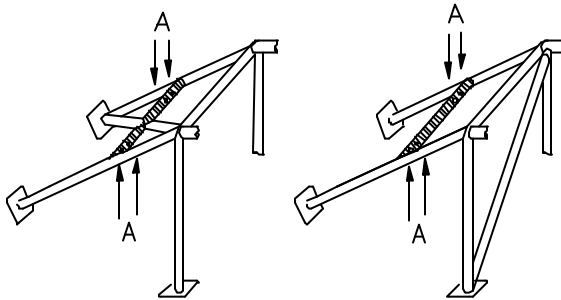
The lap and crotch straps should pass not over the sides of the seat but through the seat, in order to wrap and hold the pelvic region over the greatest possible surface.

The lap straps must fit tightly in the bend between the pelvic crest and the upper thigh. Under no conditions must they be worn over the region of the abdomen.

Holes may be made in the series seat. Care must be taken that the straps cannot be damaged through chafing against sharp edges.

- If installation on the series anchorage points is impossible for the shoulder and/or crotch straps, new anchorage points must be installed on the shell or the chassis, as near as possible to the centre-line of the rear wheels for the shoulder straps.

The shoulder straps may also be fixed to the safety cage or to a reinforcement bar by means of a loop, and may also be fixed to the top anchorage points of the rear belts, or be fixed or leaning on a transversal reinforcement welded between the backstays of the cage (see Drawing 253-66).

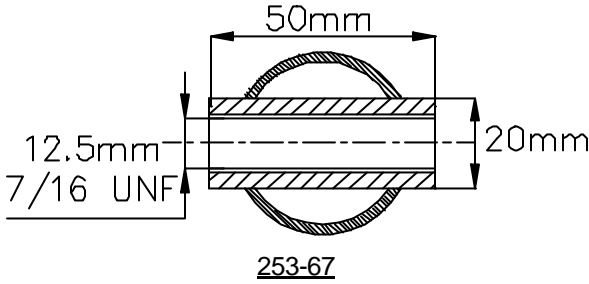


Ⓐ trous de montage pour harnais
mounting holes for harness

253-66

In this case, the use of a transversal reinforcement is subject to the following conditions:

- The transversal reinforcement shall be a tube measuring at least 38 mm x 2.5 mm or 40 mm x 2 mm, made from cold drawn seamless carbon steel, with a minimum yield strength of 350 N/mm².
- The height of this reinforcement must be such that the shoulder straps, towards the rear, are directed downward with an angle of between 10° and 45° to the horizontal from the rim of the backrest, an angle of 10° being recommended.
- The straps may be attached by looping or by screws, but in the latter case an insert must be welded for each mounting point (see Drawing 253-67 for the dimensions).



These inserts will be positioned in the reinforcement tube and the straps will be attached to them using bolts of M12 8.8 or 7/16UNF specification.

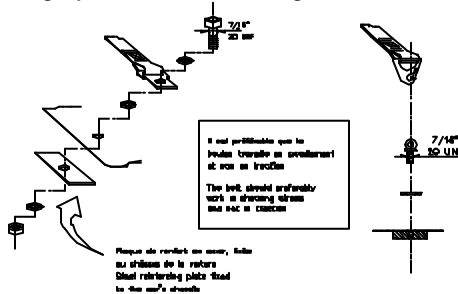
- Each anchorage point must be able to withstand a load of 1470 daN, or 720 daN for the crotch straps.

In the case of one anchorage point for two straps, the load considered will be equal to the sum of the required loads.

- For each new anchorage point created, a steel reinforcement plate with a surface area of at least 40 cm² and a thickness of at least 3 mm must be used.

- Principles of mounting to the chassis / monocoque:

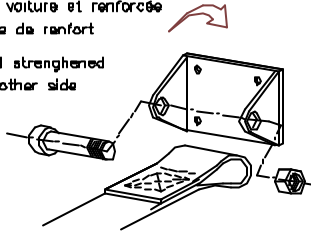
1) General mounting system: see Drawing 253-62.



2) Shoulder strap mounting: see Drawing 253-63.

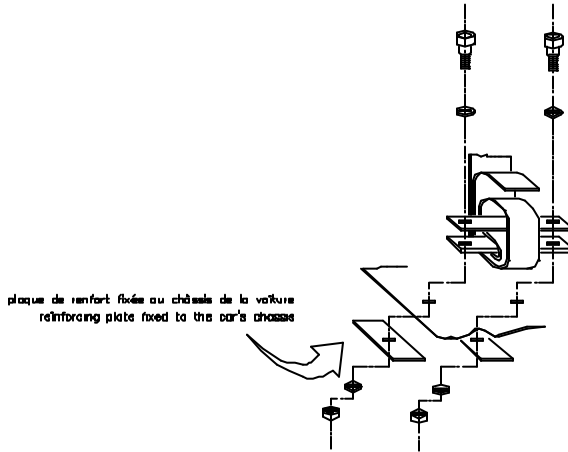
plaque fixée au châssis de la voiture et renforcée
de l'autre côté par une plaque de renfort

plate fixed to the chassis and strengthened
by a reinforced plate on the other side



253-63

3) Crotch strap mounting: see Drawing 253-64.



plaque de renfort fixée au châssis de la voiture
reinforcing plate fixed to the car's chassis

253-64

6.3 Use

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.

The effectiveness and longevity of safety belts are directly related to the manner in which they are installed, used and maintained.

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

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

Any harness which does not function perfectly must be replaced.

ARTICLE 7 : EXTINGUISHERS – EXTINGUISHING SYSTEMS

The use of the following products is prohibited: BCF, NAF.

For MAI events all competing cars must be fitted with fire extinguishers having a minimum capacity as follows:

- a) **Dry Powder** - 2kg
- b) **AFFF** - 2.4kg
- c) **Halon** - 4kg. – 1211 or 1301

It is permitted to use multiple units so long as its total capacity conforms to the minimum capacity.

All extinguishers must be adequately protected.

Their mountings must be able to withstand a deceleration of 25 g.

Furthermore, only quick-release metal fastenings, with metal straps, will be accepted.

The extinguishers must be easily accessible for the driver and the co-driver.

The following information must be visible on each extinguisher:

- capacity

- type of extinguishant

- weight or volume of the extinguishant

- date the extinguisher must be checked, which must be no more than two years after either the date of filling or the date of the last check.

7.1 XXX

7.2 XXX

7.2.1) XXX

7.2.2) All extinguishers must be adequately protected and must be situated within the cockpit.

In all cases their mountings must be able to withstand a deceleration of 25 g.

All extinguishing equipment must withstand fire.

Plastic pipes are prohibited and metal pipes are obligatory.

7.2.3) The driver must be able to trigger all extinguishers manually when seated normally with his safety belts fastened and the steering wheel in place.

7.2.4) The system must work in all positions.

7.2.5) Extinguisher nozzles must be suitable for the extinguishant and be installed in such a way that they are not directly pointed at the occupants' heads.

7.3 Manual extinguishers

7.3.1) All cars must be fitted with one or two fire extinguishers.

7.3.2) Permitted extinguishants: AFFF, FX GTEC, Viro3, powder or any other extinguishant .

7.3.3) Minimum quantity of extinguishant:

AFFF: 2.4 litres

FX G-TEC: 2.0 kg

Viro3: 2.0 kg

Zero 360 2,0 kg

Powder: 2.0 kg

7.3.4) All extinguishers must be pressurised according to the contents:

AFFF: in accordance with the manufacturer's instructions

FX G-TEC

and Viro3: in accordance with the manufacturer's instructions

Zero 360: in accordance with the manufacturer's instructions

Powder: 8 bar minimum, 13.5 bar maximum

Furthermore, each extinguisher when filled with AFFF must be equipped with a means of checking the pressure of the contents.

7.3.5) XXX

7.3.6) All extinguishers must be adequately protected. Their mountings must be able to withstand a deceleration of 25 g.

Furthermore, only quick-release metal fastenings (two minimum), with metal straps, will be accepted.

7.3.7) The extinguishers must be easily accessible for the driver and the co-driver.

ARTICLE 8 : SAFETY CAGES

8.1 General :

The fitting of a safety cage is compulsory.

It may be either :

a) Fabricated in compliance with the requirements of the following articles ;

b) Homologated or Certified by an ASN according to the homologation regulations for safety cages ;

ROLLOVER STRUCTURES

Minimum rollcage specifications is as per drawing 253-3 of the FIA.

8.1 Definitions

8.1.1) Safety cage:

A structural framework designed to prevent serious bodysHELL deformation in the case of a collision or of a car turning over.

8.1.2) Rollbar:

Structural frame or hoop and mounting points.

8.1.3) Rollcage:

Structural framework made up of a main rollbar and a front rollbar (or of two lateral rollbars), their connecting members, one diagonal member, backstays and mounting points. (For example, see drawings 253-3 and 253-4 of the FIA).

8.1.4) Main rollbar:

Structure consisting of a near-vertical frame or hoop located across the vehicle just behind the front seats.

8.1.5) Front rollbar:

Similar to main rollbar but its shape follows the windscreen pillars and top screen edge.

8.1.6) Lateral rollbar:

Structure consisting of a near-vertical frame or hoop located along the right or left side of the vehicle.

The rear legs of a lateral rollbar must be just behind the front seats.

The front leg must be against the screen pillar and the door pillar such that it does not unduly impede the entry or exit of driver and co-driver.

8.1.7) Longitudinal member:

Longitudinal tube which is not a part of the main, front or lateral rollbar and linking them, together with the backstays.

8.1.8) Diagonal member:

Transverse tube between a top corner of the main rollbar or upper end of a backstay and a lower mounting point on the other side of the rollbar or backstay.

8.1.9) Framework reinforcement:

Reinforcing member fixed to the rollcage to improve its structural efficiency.

8.1.10) Reinforcement plate:

Metal plate fixed to the bodyshell or chassis structure under a rollbar mounting foot to spread load into the structure.

8.1.11) Mounting foot:

Plate welded to a rollbar tube to permit its bolting or welding to the bodyshell or chassis structure, usually onto a reinforcement plate.

8.1.12) Removable members:

Structural members of a safety cage which must be able to be removed.

8.2 Specifications

8.2.1) General comments:

8.2.1.1) Safety cage must be designed and made so that, when correctly installed, they substantially reduce bodyshell deformation and so reduce the risk of injury to occupants.

The essential features of safety cages are sound construction, designed to suit the particular vehicle, adequate mountings and a close fit to the bodyshell.

Tubes must not carry fluids.

The safety cage must not unduly impede the entry or exit of the driver and co-driver.

Members may intrude into the occupant's space in passing through the dashboard and front side-trim, as well as through the rear side-trim and rear seats.

8.2.1.2) Basic safety cage:

Only rollcages must be used.

8.2.1.3) Compulsory diagonal member:

Different ways of fitting the compulsory diagonal member: see drawings 253-3 to 253-5 of the FIA.

The combination of several members is permitted according to drawings 253-3 and 253-5 of the FIA.

The fitting of a second diagonal member, according to drawing 253-4 of the FIA, is recommended.

The connection between the two members must be reinforced by a gusset.

8.2.1.4) XXX

8.2.2) Technical specifications:

8.2.2.1) Main, front and lateral rollbars:

These frames or hoops must be made in one piece without joints.

Their construction must be smooth and even, without ripples or cracks.

The vertical part of the main rollbar must be as straight as possible and as close as possible to the interior contour of the bodyshell.

The front leg of a front rollbar or of a lateral rollbar must be straight, or if it is not possible, must follow the windscreen pillars and have only one bend with its lower vertical part.

To achieve an efficient mounting to the bodyshell, the original interior trim may be modified around the safety cages and their mountings by cutting it away or by distorting it.

However, this modification does not permit the removal of complete parts of upholstery or trim.

Where necessary, the fuse box may be moved to enable a rollcage to be fitted.

8.2.2.2) Mounting of rollcages to the bodyshell:

Minimum mountings are:

- 1 for each leg of the main or lateral rollbar ;
- 1 for each of the front rollbar ;
- 1 for each backstay

Each mounting foot of the front, main and lateral rollbars must include a reinforcement plate, of a thickness of at least 3 mm which must not be less than that of the tube onto which it is welded.

Each mounting foot must be attached by at least three bolts on a steel reinforcement plate at least 3 mm thick and of at least 120 cm² area which is welded to the bodyshell.

Bolts must be of at least M8 size of ISO standard 8.8 or better.

Fasteners must be self-locking or fitted with lock washers.

These are minimum requirements.

In addition to these requirements, more fasteners may be used, the rollbar legs may be welded to reinforcement plates, the rollcage may be welded to the bodyshell.

Rollbar mounting feet must not be welded directly to the bodyshell without a reinforcement plate.

8.2.2.3) XXX

8.2.2.4) Diagonal members:

At least one diagonal member must be fitted.

Their location must be in accordance with drawings 253-3 to 253-5 of the FIA and they must be straight, not curved.

The attachment points of the diagonal members must be so located that they cannot cause injuries.

They may be made removable but must be in place during events.

The lower end of the diagonal must join the main rollbar of backstay not further than 100 mm from the mounting foot.

The upper end must join the main rollbar not further than 100 mm from the junction of the backstay joint, or the backstay not more than 100 mm from its junction with the main rollbar.

They must comply with the minimum specification set out in 8.3.

8.2.2.5) Optional reinforcement of the rollcage:

The diameter, thickness and material of reinforcements must be as defined in 8.3.

They shall be either welded in position or installed by means of dismountable joints.

8.2.2.5.1) Transverse reinforcing members:

The fitting of two transverse members as shown in drawing 253- 7 of the FIA is permitted.

The transverse member fixed to the front rollbar must not encroach upon the space reserved for the occupants.

It must be placed as high as possible but its lower edge must not be higher than the top of the dashboard.

8.2.2.5.2) Doorbars (for side protection):

One or more longitudinal members may be fitted at each side of the vehicle (see drawings 253-7, 253-8, 253-12, 253-17 of the FIA).

They may be removable.

If these upper attachment points are located in front of or behind the door opening, this height limitation is also valid for the corresponding intersection of the strut and the door opening.

In the case of doorbars in the form of an "X" (cross-struts), it is recommended that the lower attachment points of the cross-struts be fixed directly onto the longitudinal member and that at least one part of the "X" be a single-piece bar.

8.2.2.5.3) Roof reinforcement:

Reinforcing the upper part of the rollcage by adding members as shown in drawings 253-9 and 253-9A is permitted.

8.2.2.5.4) Reinforcement of bends and junctions:

It is permitted to reinforce the junction of the main rollbar or the front rollbar with the longitudinal struts (drawings 253-10 and 253-16 of the FIA), as well as the top rear bends of the lateral rollbars and the junction between the main rollbar and the backstays.

8.2.2.6) Protective padding:

Where the occupants' bodies or their crash helmets could come into contact with the safety cage, non-flammable padding must be provided for protection.

8.2.2.7) Removable members:

Should removable members be used in the construction of a rollcage, the dismountable joints used must comply with a type approved by the FIA (see drawings 253-27 to 253-37 of the FIA). They must not be welded.

The screws and bolts must be of ISO standard 8.8 or better.

8.2.2.8) Guidance on welding

:

All welding must be of the highest possible quality with full penetration and preferably using a gas-shielded arc. They must be carried out along the whole perimeter of the tube.

Although good external appearance of a weld does not necessarily guarantee its quality, poor looking welds are never a sign of good workmanship.

When using head-treated steel the special instructions of the manufacturers must be followed (special electrodes, gas protected welding).

It must be emphasised that the use of heat-treated or high carbon steels may cause problems and that bad fabrication may result in a decrease in strength (caused by brittle heat-affected zones), inadequate ductility and internal stress.

8.3 Material specifications

Specifications of the tubes used:

Material	Minimum tensile strength	Dimensions (mm) minimum	Use
Cold drawn seamless Unalloyed carbon steel (see below) Containing a maximum of 0.3 % of carbon	350 N/mm ²	<u>45mm x 2.5mm</u> or <u>50mm x 2mm</u>	Main rollbar (drawing 253-39 of the FIA) Lateral rollbar and their connection (drawing 253-40 of the FIA) according to construction.
		38(1.5") x 2.5 or 40(1.6") x 2.0	Others parts of the safety cage

8.4 *DRAWING N- 253 — 17B IS MANDATORY FOR ALL ROLL CAGES*

8.5 XXX

8.6 XXX

ARTICLE 9 : REAR VIEW

Rearward visibility must be ensured by two rear-view mirrors. These rear-view mirrors may be as standard.

Each rear-view mirror must have a reflecting surface of at least 90 cm².
An inside rear-view mirror is optional.

Application: Groups N.

Application: only in rallies, Groups N and N+.

ARTICLE 10 : TOWING-EYE

All cars will be equipped with a rear and front towing-eye for all events.
This towing-eye will only be used if the car can move freely.

It will be clearly visible and painted in yellow, red or orange.

ARTICLE 11 : WINDOWS / NETS

Windows.

The windows must be certified for road use, their marking standing as proof.

The windshield must be made of laminated glass.

A sun strip (Maximum height 10 cm) for the windscreen is authorised, on condition that it allows the occupants to see the road signs (traffic lights, traffic signs...).

The use of tinted glass (laminated glass) and/or safety film is permitted in side and rear windows. **In such cases it must be possible for a person situated 5 m from the car to see the driver as well as the contents of the car.**

The use of transparent and colourless anti-shatter films on the side windows and the glass sunroof is mandatory.

The thickness of these films must not be greater than 100microns.

Application: Groups N and N+

A broken windshield / windows, must be replaced at the end of the leg(Art. 20.2)

If a car has to drive through a few stages to reach the end of the leg, the crew, will have to wear a pair of goggles and a full face helmet to complete the leg. This will apply if they reach a service

before the end of the leg. The replacement of the windshield is not required at the end of the rally.

ARTICLE 12 : SAFETY FIXING DEVICES FOR WINDSHIELD

Such devices may be used freely.

Application: Groups N and N+

ARTICLE 13 : GENERAL CIRCUIT BREAKER

The general circuit breaker must cut all electrical circuits, battery, alternator or dynamo, lights, hooters, ignition, electrical controls, etc.) and must also stop the engine.

It must be a spark-proof model, and will be accessible from inside and outside the car.

ARTICLE 14 : FIA APPROVED SAFETY FUEL TANKS

Whenever a competitor uses a safety fuel tank, it must come from a manufacturer approved by the FIA.

In order to obtain the FIA's agreement, a manufacturer must have proved the constant quality of its product and its compliance with the specifications approved by the FIA.

Safety tank manufacturers recognised by the FIA must undertake to deliver to their customers exclusively tanks complying with the norms approved.

To this end, on each tank delivered the name of the manufacturer, the exact specifications according to which this tank has been manufactured, the homologation date the date of the end of validity, and the series number, shall be marked.

The marking process must be indelible and must have been approved beforehand by the FIA according to the prevailing standard.

14.1 Technical specifications

The FIA reserves the right to approve any other set of technical specifications after study of the dossier submitted by the manufacturers concerned.

14.2 Specifications FT3 1999, FT3.5 or FT5

The technical specifications for these tanks are available, on request, from the FIA Secretariat.

14.3 Ageing of tanks

The ageing of safety tanks entails a considerable reduction in the strength characteristics after approximately five years.

No bladder shall be used more than 5 years after the date of manufacture, unless inspected and recertified by the manufacturer for a period of up to another two years.

14.4 Applications of these specifications

Group N, Group A and Group B cars may be equipped with an FT3 1999, FT3.5 or FT5 safety fuel tank if the modifications necessary do not exceed those allowed by the regulations.

The use of safety foam in FT3 1999, FT3.5 or FT5 tanks is recommended.

14.5 Fuel tanks with filler necks, Groups A and N

All cars fitted with a fuel tank with filler neck passing through the cockpit must be equipped with a non-return valve homologated by the FIA. This valve, of the type "with one or two flaps", must be installed in the filler neck on the tank side."

The filler neck is defined as being the means used to connect the fuel filler hole of the vehicle to the fuel tank itself.

ARTICLE 15 : PROTECTION AGAINST FIRE

An efficient protective screen must be placed between the engine and the occupant's seat, in order to prevent the direct passage of flames in case of fire.

Should this screen be formed by the rear seats, it is advisable to cover them with a flameproof coating.

ARTICLE 16 : SEATS, ATTACHMENTS AND SUPPORTS

If the original seat attachments or supports are changed, the new parts must either be approved for that application by the seat manufacturer or must comply with the following specifications (see Drawing 253-65) :

- 1) **Supports must be attached to the shell/chassis via at least 4 mounting points per seat using bolts with a minimum diameter of 8 mm and counterplates.**
- 2) The minimum area of contact between support, shell/chassis and counterplate is 40 cm² for each mounting point.
If quick release systems are used, they must be capable of withstanding vertical and horizontal forces of 18000 N, applied non-simultaneously. If rails for adjusting the seat are used, they must be those originally supplied with the homologated car or with the seat.
- 3) The seat must be attached to the supports via 4 mounting points, 2 at the front and 2 at the rear of the seat, using bolts with a minimum diameter of 8 mm and reinforcements integrated into the seat.

ARTICLE 17 : PRESSURE CONTROL VALVES

Pressure control valves on the wheels are forbidden.