

Article 253 - Safety Equipment (Groups N, A, B, SP, ST)

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.

Application: Optional for Group N, obligatory for Group ST, obligatory for the other Groups if the series production fitting is not retained.

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.

Application: All groups, unless the series production fitting is maintained.

3.2 Specifications and installation

The fittings must be manufactured according to the specifications below:

- Fuel lines:

These must have a minimum burst pressure of 70 bar (1000 psi) at the minimum operating temperature of 135°C (250°F).

- Lubricating oil lines :

these must have a minimum burst pressure of 70 bar (1000 psi) at the minimum operating temperature of 232°C (450°F).

When flexible, these lines must have threaded connectors and an outer braid resistant to abrasion and flame (will not sustain combustion).

- Lines containing hydraulic fluid under pressure:

These must have a minimum burst pressure of 280 bar (4000 psi) at the minimum operating temperature of 232°C (450°F).

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

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

- Lines containing cooling water or lubricating oil:

These must be outside the cockpit.

- Lines containing fuel or hydraulic fluid:

These may pass through the cockpit, but without any connectors inside except on the front and rear bulkheads according to drawings 253-1 and 253-2, and on the braking circuit.

Application: Obligatory for Group ST, obligatory for the other Groups if the series fitting is not retained.

3.3 Automatic fuel cut-off

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.

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

Application: Recommended for all the groups and obligatory for Super Touring.

3.4 Fuel cell ventilation

The ventilation line of the fuel cell as far as the valves described below must have the same specifications as those of the fuel lines (article 3.2) and must be fitted with a system complying with the following conditions :

Gravity activated roll-over valve

Float chamber ventilation valve

Blow-off valve with a maximum over pressure of 200 mbar, working when the float chamber ventilation valve is closed.

ARTICLE 4 : BRAKING SAFETY SYSTEM

Double circuit operated by the same pedal: the pedal shall normally control all the wheels ; in case of a leakage at any point of the brake system pipes or of any kind of failure in the brake transmission system, the pedal shall still control at least two wheels.

If this system is fitted in series production, no modifications are necessary.

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.

Application: Optional for Group N, obligatory for the other Groups.

ARTICLE 6 : SAFETY BELTS

6.1 Belts

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 and comply with FIA standard n°8853/98 or 8854/98.

Furthermore, the belts used in circuit competitions must be equipped with turnbuckle release systems.

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 rollcage when this cage is being homologated (see art 253.8.4), 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 must be installed on the anchorage points of the series car.

The recommended geometrical locations of the anchorage points are shown in drawing n° 253-42.

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 4-point safety harnesses must be installed on the rear seat lap strap anchorage points originally mounted by the car manufacturer.

For a 4-point 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 if this proves to be necessary in order to avoid such an occurrence. 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 rollcage 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 to the backstays of the rollbar.

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 drawings 253-17C and 253-53 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 253-43.

2) Shoulder strap mounting: see drawing 253-44.

3) Crotch strap mounting: see drawing 253-45.

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.

7.1

In rallies :

Articles 7.2 and 7.3 apply.

In circuit events, slaloms, hillclimbs :

Hand-operated extinguishers are compulsory.

In place of one of the extinguishers mentioned above, it is permitted to fit an automatic extinguisher system which conforms to the specifications of article 259.14

7.2 Systems mounted

7.2.1) All cars must be equipped with an extinguishing system from technical list n°16 : "Extinguisher systems homologated by the FIA".

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.

Furthermore, a means of triggering from the outside must be combined with the circuit-breaker switch, or situated close to it. It must be marked with a letter "E" in red inside a white circle of at least 10 cm diameter with a red edge.

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, powder or any other extinguishant homologated by the FIA.

7.3.3) Minimum extinguisher capacity:

In case of use of powder: 2.60 litres for the quantities specified hereafter.

7.3.4) Minimum quantity of extinguishant:

AFFF: 2.4 litres

Powder: 2.0 kg

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

AFFF: in accordance with the manufacturer's instructions

Powder: 13.5 bar

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

7.3.6) 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.

7.3.7) 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.

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

ARTICLE 8 : ROLLOVER STRUCTURES

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).

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.

The rear seat may be folded down.

Longitudinally, the safety cage must be entirely contained between the top mounting points of the front suspension and the top mounting points of the rear suspension.

Any modification to a homologated safety cage is forbidden.

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.

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

The fitting of a second diagonal member, according to drawing 253-4, is recommended, and mandatory for all new cars homologated as from 1 January 2002.

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

8.2.1.4 Optional reinforcing members:

Each type of reinforcement (drawings 253-6 to 253-17, 253-17A and 253-17C) may be used separately or combined with others.

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.

Where a main rollbar forms the rear legs of a lateral rollbar (drawing 253-4), the connection to the lateral rollbar must be at roof level.

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 (see 8.2.2.3).

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.

Examples are shown in drawings 253-18 to 253-24.

This does not necessarily apply to backstays (see below).

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 Backstays:

These are compulsory and must be attached near the roofline and near the top outer bends of the main rollbar on both sides of the car.

They must make an angle of at least 30° with the vertical, must run rearwards and be straight and as close as possible to the interior side panels of the bodyshell.

Their materials specification, diameter and thickness must be as defined in 8.3.

Their mountings must be reinforced by plates.

Each backstay should be secured by bolts having a cumulative section area at least two thirds of that recommended for each rollbar leg mounting in 8.2.2.2 above, and with identical reinforcement plates of at least 60 cm² area (see drawing 253-25).

A single bolt in double shear is permitted, provided it is of adequate section and strength (see drawing 253-26) and provided that a bush is welded into the backstay.

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 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.

Diagonal members fixed to the bodyshell must have reinforcement plates as defined in 8.2.2.3 above.

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 dismantable joints.

8.2.2.5.1) Transverse reinforcing members:

The fitting of two transverse members as shown in drawing 253-7 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).

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), as well as the top rear bends of the lateral rollbars and the junction between the main rollbar and the backstays.

The ends of these reinforcing tubes must not be more than half way down or along the members to which they are attached, except for those of the junction of the front rollbar, which may join the junction of the door strut/front rollbar.

A reinforcement as in drawing 253-17B may be added on each side of the front rollbar between the upper corner of the windscreen and the base of this rollbar.

For cars homologated as from 01/01/2002 :

In frontal projection, reinforcements of bends and junctions of the upper corners of the front roll-cage must be only visible through the area of the windscreen described by drawing 253-17E.

For all the safety rollcages for Super Production Cars, homologated as from 1 January 2000 and for all the safety rollcages for rally cars homologated as from 1 January 2001, the presence of the rollcage in the door aperture must comply with the following criteria (see drawing 253-17D) :

- Dimension A must be a minimum of 300 mm
- Dimension B must be a maximum of 250 mm
- Dimension C must be a maximum of 300 mm
- Dimension D (measured from the upper corner of the windscreen, without the seal) must be a maximum of 100 mm
- Dimension E must not be more than half the height of the door aperture (H).

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 dismantable joints used must comply with a type approved by the FIA (see drawings 253-27 to 253-37). They must not be welded.

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

It should be noted that dismantable joints must not be used as part of a main, front or lateral rollbar because they act as hinges in the principal structure and allow deformation.

Their use is solely for attaching members to the rollbars and for attaching a lateral rollbar to a main rollbar (drawing 253-4).

In this last case, hinged joints illustrated in drawings 253-30, 253-33 and 253-37 must not be used.

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)	Use
Cold drawn seamless unalloyed carbon steel (see below) containing a maximum of 0.3 % of carbon	350 N/mm ²	45(1.75") x 2.5 or 50(2.0") x 2.0	Main rollbar (drawing 253-39) Lateral rollbar and their connection (drawing 253-40) according to construction.
		38(1.5") x 2.5 or 40(1.6") x 2.0	Others parts of the safety cage

For an unalloyed steel, the maximum content of additives is 1% for manganese and 0.5% for other elements.

In selecting the steel, attention must be paid to obtaining good elongation properties and adequate weld ability.

The tubing must be bent by a cold working process and the centreline bend radius must be at least 3 times the tube diameter.

If the tubing is ovalised during bending, the ratio of minor to major diameter must be 0.9 or greater.

Articles 8.1 to 8.3 inclusive concern rollbars manufactured without a certificate from an ASN (article 8.4) or from the FIA (article 8.5).

8.4 Homologation by an ASN

Not valid for the safety cages for World Rally Cars that must be mandatorily homologated by the FIA according to an article 8.5.

Safety cage manufacturers may submit a safety cage of their own design to an ASN for approval as regards the quality of steel used with or without welding, the dimensions of the tubes, the optional reinforcing members (according to article 8.2.2.5) and the mounting to the vehicle, provided that the construction is certified to withstand the stress minima given hereafter in any combination on top of the safety cage:

- 1.5 W* lateral ;
- 5.5 W fore and aft ;
- 7.5 W vertical.

(*W = weight of the car + 150 kg).

The use of cold finished welded tubes is authorised on the sole condition that this is specified on the homologation certificate.

Longitudinal rollcage extensions are allowed up to the level of the original suspension mounting points on the shell.

There must not be direct connection between the top extension and the bottom extension.

A homologation certificate, approved by the ASN and signed by qualified technicians representing the manufacturer, must be presented to the event's scrutineers.

It must contain drawings or photos of the safety cage in question including its fixation and particularities, and must declare that the rollcage can resist the forces specified above.

Any new cage which is homologated by an ASN and is on sale, as from 01.01.97, must be identified by means of an individual number affixed to it by the manufacturer; this number must be neither copied nor moved.

A certificate bearing the same number will be attached to each of the cages by the manufacturer.

This certificate must also be presented to the event's scrutineers.

These safety cages must not be modified in any way.

To obtain the ASN's approval, a manufacturer must have demonstrated his consistent ability to design and manufacture rollcages which comply with the specifications approved by the FIA.

Manufacturers approved by the ASN shall supply customers only with products designed and manufactured to the approved standards.

Each ASN-approved manufacturer shall demonstrate to the ASN:

- that the material he uses has a certificate of origin or of traceability, and is kept segregated from other batches or material ;
- that the welding methods he uses produce consistent and sound welds and are regularly checked by laboratory tests ;
- that he operates and maintains auditable in-house quality standards and procedures, updated regularly.

Rollcages made up of a basic structure as per articles 253.8.1 to 8.3, or of a structure already tested and homologated by the ASN concerned and coming from the same manufacturer, and on which the only modifications carried out will have been the addition of parts, may be homologated directly by the ASN concerned, once the resistance has been tested and the manufacturer has supplied a certificate.

For the other rollcages, the ASNs may carry out a static test as follows (see drawing 253-37):

1 - Rollcage to be considered:

As the total function of a rollcage must be considered only in its entirety, the test must be carried out on the complete rollcage.

2 - Testing device:

This must be constructed in such a way that none of the loads has any influence on its structure.

3 - Mountings:

The rollcage must be fitted to the testing device by its original mountings.

4 - Test:

A vertical load of 7.5 w (W being the weight of the car + 150 kg) is to be applied with a stamp with minimum area 500 x 200 mm on the main rollbar behind the driver's seat.

5 - Accepted distortion:

This test must not produce, in the total safety structure, any breakage or any plastic distortion of more than 50 mm.

8.5 FIA homologation

FIA suggests that each car manufacturer should recommend a type of safety cage complying with FIA standards, as defined in 8.4 above.

This safety cage must be described on a homologation extension form presented to FIA for approval and the safety cage must not be modified (see 8.2.1.1) in any way.

All World Rally Car safety cages homologated as from 1 January 2001 must be homologated by the FIA.

8.6 Modification to a homologated safety cage

Any modification to a homologated safety cage is forbidden and renders the cage invalid.

ARTICLE 9 : REAR VIEW

Rearward visibility must be ensured by two external rear-view mirrors (one on the right and one on the left). 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, A, B. For Super Production and ST, see specific regulations.

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

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

The windshield must be made of laminated glass.

In rallies only :

If silvered or tinted films are not used or if the side windows are not made from laminated glass, the use of translucent and colourless anti-shatter films on the side windows is mandatory.

The use of silvered or tinted films is authorised in rallies only, on the side and rear windows, and on the following conditions:

- Openings in these films must allow a person outside the car to see the driver as well as the contents of the car.

- This authorisation must be mentioned in the supplementary regulations of the event.

Application: Groups N, A, B. For Super Production and ST, see specific regulations.

For events on circuits, the use of nets affixed to the safety roll-cage is mandatory.

These nets must have the following characteristics :

Minimum width of the strips : 19 mm

Minimum size of the meshes : 25 x 25 mm.

Maximum size of the meshes : 60 x 60 mm.

and must close up the window opening to the centre of the steering wheel.

For Supertouring cars, it is possible to locally modify the net, in order to preserve rearward visibility for the driver.

ARTICLE 12 : SAFETY FIXING DEVICES FOR WINDSHIELD

Such devices may be used freely.

Application: Groups N, A, B. For ST, see specific regulations.

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.

As for the outside, the triggering system of the circuit breaker will compulsorily be situated at the lower part of the windscreen mounting of the driver's side for closed cars. It will be marked by a red spark in a white-edged blue triangle with a base of at least 12 cm.

This outside triggering system only concerns closed cars.

Application: Compulsory fitting for all cars taking part in speed events on circuits or hill-climbs. The fitting is recommended for other events.

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 model, the exact specifications according to which this tank has been manufactured, the date of the manufacturing, and the series number, shall be printed.

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 FIA/FT3 or FIA/FT3 1999

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 or FT3 1999 safety fuel tank if the modifications necessary do not exceed those allowed by the regulations. Group ST cars must be equipped with an FT3 or FT3 1999 tank.

As far as Group N cars are concerned, the maximum capacity of the FT3 or FT3 1999 tanks must be that of the homologated tank, except for rallies (see article 254.6.8.).

The use of safety foam in FT3 or FT3 1999 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 253-52):

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, according to the drawing.

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.

2) 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.

Each mounting point must be capable of withstanding a force of 15000 N applied in any direction.

3) The minimum thickness of the supports and counterplates is 3 mm for steel and 5 mm for light alloy materials.

The minimum longitudinal dimension of each support is 6 cm.

All the occupants' seats must be either original, modified only through the addition of accessories with a registered trademark, or homologated by the EEC, the FMVSS or the FIA (8855/1992 or 8855/1999 standards), and not modified. In all these cases, a headrest must be present for each occupant.

ARTICLE 17 : PRESSURE CONTROL VALVES

Pressure control valves on the wheels are forbidden.