

Article 283 - Safety Equipment for Cross Country Cars

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, FUEL PUMPS AND ELECTRIC CABLES

3.1 Group T1

Series production fittings may be retained. If they are modified, they must comply with the paragraphs concerning them below. Additional protections are authorised on the inside against risks of fire or of the projection of fluids.

3.2 Group T2

The fittings must be manufactured according to the specifications below :

3.2.1) Fuel lines 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).

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.

3.2.2) Lines containing hydraulic fluid under pressure 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 connectors and an outer braid resistant to abrasion and flame (will not sustain combustion).

3.2.3) Lines containing cooling water and lubricating oil must be outside the cockpit. Lines containing fuel or hydraulic fluid may pass through the cockpit but without any connections except on the front and rear bulkheads in accordance with the diagrams 253-1 and 253-2, and on the braking circuit. Only the tank for the hydraulic fluid and the master cylinder for the handbrake circuit will be accepted in the cockpit.

3.2.4) Fuel pumps and taps must be outside the cockpit.

3.2.5) Only the intakes, exits and lines for air for ventilating the cockpit are allowed inside the cockpit.

3.2.6) The electrical cables must be protected by coverings which do not sustain combustion.

3.2.7) Self-sealing fast connectors of the same make as the flexible lines on which they are fitted may be installed on all the lines excepting the brake lines.

3.3 All groups

The lines must be protected externally against any risk of deterioration (stones, corrosion, mechanical breakage, etc.).

Automatic fuel-flow cut-off:

It is recommended that all fuel feed pipes going to the engine and return pipes from the engine 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.

The vent lines should also be fitted with a gravity activated roll-over valve.

All the fuel pumps should only operate when the engine is running, or during the starting process.

ARTICLE 4 : BRAKING SAFETY SYSTEM

Double circuit operated by the same pedal:

The pedal shall normally control all the wheels ; in the event 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.

The vehicle may be fitted with a handbrake system acting on the brakes of one and the same axle and completely independent of the main system (hydraulic or mechanical).

ARTICLE 5 : ADDITIONAL FIXATIONS

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

This measure also applies to tailgates, but not to doors.

The original locking mechanisms may be rendered inoperative or removed.

These fasteners must be "American fasteners", a bayonet passing through the lid, and the latter being locked by a pin also attached to the lid.

If plastic parts are used, metal reinforcements must be provided for, to prevent wrenching.

Large objects carried on board the vehicle (such as the spare wheel, tool kit, etc.) must be firmly fixed. The use of elasticated cord is forbidden.

ARTICLE 6 : SAFETY BELTS

6.1 Belts

The wearing of two shoulder straps and one lap strap is compulsory.

Anchorage points on the shell or the chassis: 2 for the lap strap, 2 (or possibly one symmetrical about the seat) for the shoulder straps.

These belts must comply with FIA standard n°8853/98 or 8854/98.

Furthermore, 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. 283.8.4), 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.

The anchorage points of the series car (Group T1) must be used.

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

A hole may be made in a series production seat to allow the passage of a safety belt.

- 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 harness 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 seats. 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.

If this latter mounting is impossible, the shoulder straps may be fixed or leaning on a rear transversal tube fixed to the rollbar or to the top anchorage points of the front belts.

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 downwards 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 7/16 UNF 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 Systems mounted

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

7.1.2) 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.

7.1.3) 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 situated near to the circuit-breaker switch, and not combined with 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.

7.1.4) The system must work in all positions.

7.1.5) 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."

7.2 Manual extinguishers

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

7.2.2) Permitted extinguishants: AFFF, powder or any other extinguishant homologated by the FIA.

7.2.3) Minimum extinguisher capacity:

In case of use of powder:

2.60 litres for the quantities specified hereafter.

7.2.4) Minimum quantity of extinguishant:

AFFF: 2.4 litres

Powder: 2.0 kg

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

AFFF: in accordance with the manufacturer's instructions

Powder: 13.5 bar

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

7.2.6) 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.

7.2.7) 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.

7.2.8) 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 the 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 of 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.

The safety cage must be entirely contained :

- at the front : 200mm in front of the front wheel axis
- at the rear : at the level of the rear wheel axis.

Nevertheless, the backstays may extend beyond this plane to be attached to the chassis.

The rear backstays on a monocoque chassis may extend beyond the rear suspension mounting points, provided that they are fixed or welded onto a hollow body of the monocoque chassis.

Any modification to a homologated safety cage is forbidden.

The rear face of the headrest subjected to the regulation load will define the position of the tube of the main rollbar which may not protrude beyond it in vertical projection.

The minimum free height below the rollbar tube will be 900 mm, measured vertically from the bottom of the uncrushed seat.

8.2.1.2 Basic safety cage:

Only rollcages must be used, completed by a front transversal strut and two door struts (see drawing 283-6).

In the case of a car with a crew of three, the safety cage must comply with drawing 283-5, with a second main rollbar situated close to the back(s) of the rear seat(s).

With regard to pick-up vehicles, the cockpit of which is not large enough to allow the fitting of the compulsory basic safety cage, it shall be possible to mount the rollbar(s) as per one of the drawings 283-1 to 283-4.

This possibility is open to pick-ups only, to the exclusion of all other types of bodywork and all the points of the installation must comply with the prescriptions of the other paragraphs (including the material specifications of art. 8.3).

Drawing 283-1: One diagonal strut compulsory.

Drawing 283-2: Two diagonal struts compulsory, one for the four-point rollbar inside the cockpit (according to drawing 253-4), one for the four points outside rollbar (according to drawing 253-3 or 253-4).

Drawing 283-3: One diagonal strut compulsory (according to drawing 253-3 or 253-4).

Drawing 283-4: Two diagonal struts compulsory, one for the interior four-point rollbar, one for the exterior six-point rollbar.

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.

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.

The safety rollcages must be fixed directly to the steel bodyshell or the main chassis, i.e. onto the structure to which the suspension loads are transmitted (with if necessary additional reinforcement at the joint between the chassis and the foot of the rollbar).

Rollcages equipping vehicles with a tubular or semi tubular space frame (T2) must be integrated where the tubes join above the sill of the entrance to the cockpit.

At least one tube of the same section and quality as those of the chassis must extend each foot of the rollbar downwards.

Another diagonal is recommended, as well as a horizontal tube at floor level.

The tubes making up the rollbar above the level of the entrance to the cockpit must have at least all the parts making up the minimum rollcage, as well as the dimensions recommended.

8.2.2.3 Backstays:

These are compulsory and must be attached near the roof line 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 or compulsory reinforcements 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 demountable joints.

Reinforcement tubes must be straight and not bent.

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 is obligatory and 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):

At least one longitudinal strut must be fitted on each side of the vehicle at door level.

The tube(s) making up this reinforcement must be built into the rollcage and its(their) angle with the horizontal tube must not exceed 15° (angled downwards towards the front).

The lateral protection must be as high as possible and, if it comprises a single bar, at least 10 cm from the bottom of the seat, but in all cases its upper attachment points must not be higher than half the total height of the door measured from its base.

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.

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 pillar.

A reinforcement as in drawing 283-17B may be added on each side of the front rollbar between the upper corner of the windscreen and the base of this rollbar.

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 demountable 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 demountable 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.

The removable connections must be fitted within the extension of the axis of the tubes, and must not be offset.

8.2.2.8 Guidance on welding:

All welding must be of the highest possible quality with full penetration over the entire perimeter of the tube 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 containing a maximum of 0.22% 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 rollbars and their connection (drawing 253-40) according to construction.
		38(1.5") x 2.5 ou 40(1.6") x 2.0	Others parts of the safety cage

Note that these figures represent the minima allowed.

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.

8.4 Homologation by an ASN

Safety cage manufacturers may submit a safety cage of their own design to an ASN for approval as regards the quality of steel used, the dimensions of the tubes, the optional reinforcing members 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 + 500 kg).

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 of 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 283.8.1 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 + 500 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.

ARTICLE 9 : REAR VIEW

The rear view must be efficiently obtained by means of two outside mirrors (one on each side of car).

ARTICLE 10 : TOWING-EYE

All cars will be equipped with a rear and front towing-eye. This towing-eye must be very firmly fixed and it must not be used to lift the car. It will be clearly visible and painted in yellow, red or orange, and must be located within the perimeter of the car. Minimum inside diameter: 50 mm.

ARTICLE 11 : WINDSCREEN, WINDOWS, APERTURES

A windshield made of laminated glass is compulsory. In the event of breakage of a windscreen, the wearing of a crash helmet with a visor (or motor-cycle type goggles) shall be compulsory, otherwise the vehicle shall not be admitted to the start. If, after an accident, the deformation of the bodywork will not allow the replacement of the windscreen by a windscreen made from laminated glass, it may be replaced by a windscreen made from polycarbonate with a minimum thickness of 5 mm. The rear and side windows, if transparent, must be made from a homologated material or from polycarbonate with a minimum thickness of 3 mm.

All cars of which the front doors are fitted with wind-down windows must be equipped with protection nets affixed to these doors using a quick release system.

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.

ARTICLE 12 : SAFETY FIXING DEVICES FOR WINDSHIELD

Such devices may be used freely.

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.

It will be marked by a red spark in a white-edged blue triangle with a base of at least 12 cm.

One single external switch is compulsory in Group T1, but Group T2 cars must be equipped with two external switches, one on either side of the windscreen.

For Diesel engines, the circuit breaker must be coupled with a device cutting off the intake into the engine.

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 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.

A leak proof window made from non-flammable material, installed in the protection for FT3 or FT3 1999 tanks must make it possible to check the use-by date.

14.4 Installation of tanks

The tank may be replaced by a safety tank homologated by the FIA (FT3 or FT3 1999 specification), or by another tank homologated by the manufacturer of the car. In this case a panel may be used to close off the opening left by the removal of the original tank.

The number of tanks is free.

It is also possible to combine the various homologated tanks (including the standard tank) and FT3 or FT3 1999 tanks.

Any tank which is not homologated must be an FT3 or FT3 1999 tank.

The competitor must submit the certificate of conformity or FIA approval certificate, bearing the tank number and the year of manufacturer (maximum 5 years).

Collecting tanks with a capacity of less than 1 litre are of free construction, but their number is limited by that of the main tanks equipping the vehicle.

The original tank may be conserved in its original position.

An increased capacity FT3 or FT3 1999 tank may be fitted in the position of the original tank.

For cars in respect of which the manufacturer has provided for a closed compartment for luggage (front or rear luggage space) which is an integral part of the bodywork, this compartment must be used to house the additional tank.

Holes must be provided for in the floor of the boot in order to allow the outflow of the fuel in the event of a leak.

For cars in respect of which the manufacturer has not provided for a specific luggage compartment, as an integral part of the

bodywork, the additional tank may be situated inside the cockpit to the rear of the rearmost seat.

In all cases, the tank including the filling pipes, must be totally insulated by means of flameproof and liquid-tight bulkheads, preventing the infiltration of fuel into the cockpit or contact with the exhaust pipes.

Should the tank be installed in the luggage compartment, and when the rear seats are removed, the cockpit must be separated from the tank by a fire-resistant, flameproof and liquid-tight bulkhead.

In the case of a two-volume car, it will be possible to use a non-structural, non-flammable bulkhead made from transparent plastic between the cockpit and the location of the tank.

Tanks must be efficiently protected and very firmly attached to the bodyshell or the chassis of the car.

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

The location and dimension of the filler hole and cap may be changed on condition that the new installation does not protrude beyond the bodywork and gives every guarantee against a possible leakage of fuel into one of the inner compartments of the car.

These holes may be situated in the location of the rear windows. The filler hole and the air vent must always be situated outside the cockpit on a metal part.

If there is a filler hole inside the bodywork, it must be surrounded by a receptacle with outflow to the outside.

The air vent must either come out on the roof of the vehicle or make a loop as high as possible inside the vehicle and come out under the vehicle on the opposite side to its connection to the tank.

These air vents must be fitted with self-sealing valves.

For pick-up cars in T1 or T2, the cockpit of which is totally separated from the rear platform (completely closed metal cabin), the tank must either originate of a series production vehicle, or be an FT3 or FT3 1999 type tank and the platform must be modified in order to allow the outflow of the fuel in the event of a leak.

14.5 Fuel tanks with filler necks

All cars fitted with a fuel tank with a 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 all the mechanical parts on the one hand, and the occupant's seats on the other hand, in order to prevent the direct passage of flames in case of fire.

ARTICLE 16 : LIGHTING EQUIPMENT

The lighting equipment must comply on all points with the International Convention on Road Traffic.

Each car must be fitted with at least:

- 2 headlights (combined passing lights/headlights)
- 2 front lamps
- 2 rear lamps and number plate lighting
- 2 stop lights
- 2 flashing indicators at the front and at the rear
- distress lights.

Each 'stop' light will have a minimum surface of 50 cm². The two headlamps and the additional lamps must be located in front of the axis of the front wheels, at a maximum height corresponding to that of the line of the bonnet/bottom of the windscreen (8 lamps maximum).

Each car must also be equipped with two red rear fog lamps, twinned or placed side by side with two "stop" lights.

Each of these lamps will have a power between 21 and 55 watts. They will each have a working surface area of 50 cm², or must have been approved by the FIA having been proved to be at least as effective.

They will be situated at a minimum height of 1.50 m from the ground, visible from the rear and attached to the outside of the vehicle. They must be fixed to both rear sides of the vehicle or,

for pick-up type vehicles, to the upper angles of the rear part of the cabin.

These lights must be constantly switched on during the running of the selective section upon the directions of the Clerk of the Course.

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

A crew may not be allowed to start a stage until the electric circuit has been mended should it have been ascertained as being faulty.

The fitting of a reverse light is authorised, provided that it only operates when the gear lever is in the reverse position.

ARTICLE 17 : AUDIBLE WARNING DEVICE

Each car must be equipped with a compressor audible warning device, in working order throughout the entire duration of the event.

ARTICLE 18 : SPARE WHEELS

Each vehicle shall include at least two spare wheels, identical to those with which the car is fitted, which must be very firmly secured throughout the entire duration of the event.

ARTICLE 19 : MUDFLAPS

Transversal mud flaps will be accepted under the following conditions:

- they must be made from flexible material.
- they must cover at least the width of each wheel, but at least one third of the width of the car (see drawing 252-6) must be free behind the front wheels and the rear wheels.
- there must be a gap of at least 20 cm between the right and left mud flaps in front of the rear wheels.
- the bottom of these mud flaps must be no more than 10 cm from the ground when the car is stopped, with nobody on board.
- in vertical projection, these mud flaps must not protrude beyond the bodywork.

These mud flaps are compulsory to the rear of the rearmost wheels and to the rear of the driven wheels; they must fulfil the preceding conditions, must be made from rubberised canvas or plastic (minimum thickness 5 mm) and be continuous with the bodywork.

Mud flaps to prevent splashing towards the front, made from flexible material, may be installed at the front of the vehicle.

They must not protrude beyond the overall width of the vehicle, or beyond the original overall length by more than 10 cm, and at least one third of the width of the car must be free in front of the front wheels.

ARTICLE 20 : SEATS

In T1 and T2 if the original seat attachments or supports are changed, these parts must either be made by a FIA approved manufacturer or must comply with the following specifications (see drawing n° 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 will be 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 (T1) 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 will be 3 mm for steel and 5 mm for light alloy materials.

The minimum longitudinal dimension of each support will be 6 cm.

All the occupants' seats must be either original, modified only through the addition of accessories with a registered trade mark,

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 with a minimum surface area of 400 cm² must be present for each occupant.

The surface must be continuous and have no protruding parts.

Its position will be such that it will be the first point of contact with the driver's or passenger's helmet in the event of an impact

projecting the heads of the vehicle's occupants rearwards, when they are seated in their normal position.

This headrest must not deflect by more than 5 cm when a rearward force of 850 N is applied to it.

The distance between the helmet and the headrest must be minimal, such that the distance moved by the helmet, when the above-mentioned force is applied and the occupant is in his normal driving position, is less than 5 cm.