Art. 253 - Safety equipment (category I)

SAFETY DEVICES FOR ALL CARS OF CATEGORY I COMPETING IN EVENTS ENTERED ON THE FIA INTERNATIONAL CALENDAR:

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

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

3) CABLES, LINES AND ELECTRICAL EQUIPMENT

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

If the series production fitting is retained, no additional protection is necessary.

Application: obligatory for Touring Cars (Gr. A), Sports Cars (Gr. B).

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.

Application: compulsory fitting on all cars Touring Cars (Gr. A), Sports Cars (Gr. B). If this system is fitted in series production, no modifications are necessary.

5) ADDITIONAL FASTENERS

At least two additional fasteners for the front and rear bonnet and boot lid, the original fasteners having been rendered inoperative.

Large objects carried on board the vehicule (such as the spare wheel, toolkit, etc.) must be firmly fixed.

Application: obligatory for Touring Cars (Gr. A), Sports Cars (Gr. B). Optional for Production Cars (Gr. N).

6) SAFETY BELTS

Wearing of a diagonal strap and one abdominal strap: fixation points on the shell: 3.

Application: Compulsory for all Production Cars (Gr. N) together with Touring Cars (Gr. A), Sports Cars (Gr. B) participating in rallies.

Wearing of two shoulder straps and one abdominal strap: fixation points on the shell: two for the abdominal strap - two or possibly one symetrical in relation to the seat for the shoulder straps.

Application : compulsory for all Touring Cars (Gr. A), Sports Cars (Gr. B) (except in rallies).

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

7) EXTINGHISHERS - EXTINGUISHING SYSTEMS

They must have the following characteristics:

RALLY, CIRCUIT, SLALOM, HILL CLIMBS	(minimum quantities) 4 kg Halon 1211 or 1301 powder or equivalent* (in 2 bottles maximum)

**équivalent :* a product having a efficiency and non-toxicity at least equal to that of Halon 1211.

N.B. : Installed systems are allowed in Group Touring Cars (Gr. A) Sports Cars (Gr. B) as replacements for the systems laid down in this article. In this case please refer to the Sport Prototype Cars regulations (Article 4.4).

7.1.1) **Installation**
Each extinguisher bottle must be installed in such a way that it is capable of withstanding accelerations of up to 25 g no matter how these are applied. Only rapid release metal mountings will be accepted.

7.1.2) **Operation - Triggering**
The extinguisher(s) must be easily accessible to the driver and co-driver.

7.1.3) **Checking**
The type of extinguishant, its quantity, and the total weight of the bottle must be specified on the bottle(s).

7.2.1) **Circuits, Rallies, Slaloms, Hillclimbs**
The cars must be equipped with one or two bottles containing a minimum of 4 kg of Halon 1211 or 1301 (BCF-BTM) powder or equivalent.

7.2.2) **Autocross or Rallycross**
Cars must be equipped with a single bottle containing 2 kg minimum Halon 1211 or 1301 (BCF-BTM) power or equivalent.

8) ROLLBAR

8.1) DEFINITIONS

8.1.1) **Rollcage**
A structural framework made up of tubes, connections and fixation points. It is designed to prevent serious deformation in the case of a collision or a car turning over.

8.1.2) **Rollbar**
Structural framework made up of a main rollbar, a front rollbar, connections and fixation points.

8.1.3) **Safety cage**
Structural framework made up of a main rollbar, a front rollbar, connections and fixation points.

8.1.4) **Main rollbar**
A structure which should be made out of a vertical frame situated in transversal plane in relation to the car's axis, near the back of the front seats.

8.1.5) **Front rollbar**
Identical to the main rollbar but its shape follows the windscreen mountings and the front part of the roof.

8.1.6) **Lateral rollbar**
A rollcage made up of a vertical framework situated in a longitudinal plane or in relation to the car's axis placed on the right or the left. The rear pillar must be placed against or behind the back of the driver's seat or that of his co-driver. (Drawing 6). In cases where the rear pillar is used as the main rollbar, the connection must be near the roof (Drawing 4a). The front bar must be near the windscreen and dashboard. The driver and his co-driver must be able to get in and out of the vehicle without any inconvenient difficulty.

8.1.7) **Longitudinal strut**
Longitudinal tubes belong neither to the main rollbar nor to the front rollbar.

8.1.8) **Diagonal strut**
Tube crossing the car from one of the corners of the main rollbar to any fixation point of the other side of the rollbar or of the near longitudinal strut.

8.1.9) **Framework reinforcement**
Tube fixed to the rollcage improving its efficiency.

8.1.10) **Reinforcement plates**
Metal plates, fixed to the chassis structure of the cars on which the rollbar rests.

8.1.11) **Fixing plates**
Plates which are attached to the tubes and allow their fixation to the chassis.

8.1.12) **Removable connections**
Optional connection of lateral or diagonal struts to the main rollbar or the front rollbar. It must be possible to dismantle these pieces of equipment.

8.2) SPECIFICATIONS

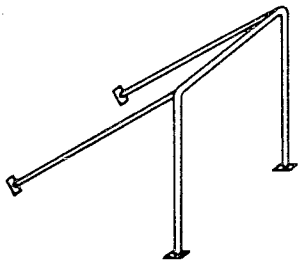
8.2.1) General comments

8.2.1.1) Safety cages should be designed and constructed in such a fashion that after they have been properly built in, they prevent the bodywork from deforming and thus reduce the risks of injury to people on board the vehicule.
The essential characteristics of safety cages come from a finely detailed construction, suitable adaptation and fixation to the car plus snug fitting against the bodywork. The rollbars must never be used as pipes for liquids.
The bar or bars must be constructed in such a way that it (they do) not obstruct access to the front seats and do not encroach on the space provided for the driver an co-driver. However parts of the rollcage may encroach upon the front passenger space by passing through the lateral upholstery of the rear seats. The rear seat may be folded down.
Any modification to the homologated rollbars (see Art. 8.6) is forbidden, even with regard to the fixations and welds.

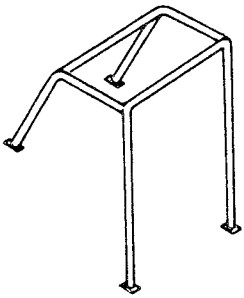
8.2.1.2) Basic rollcage (drawings 1 & 2)
Rollbar : Production Cars (Gr. N) and Touring Cars (Gr. A), Sports Cars (Gr. B) up to 2 000 cm^3.
Rollcage : Touring Cars (Gr. A), Sports Cars (Gr. B) more than 2,000 cm^3 (optional for Production Cars (Gr. N) and Touring Cars (Gr. A), Sports Cars (Gr. B) up to 2,000 cm^3) (drawings 3 & 4).

8.2.1.3) Different possibilities of installing the obligatory strut (with the exception of rallies).
The obligatory strut can be fixed as illustrated in all basic rollcages (drawings 1-4).
The combination of several struts (drawings 5-8) is permitted.

8.2.1.4) Different possibilities of installing the optional reinforcements of the rollcage (drawings 9 to 12).
Each type of reinforcement (drawings 9-11) may be used separately or combined with one or several others.
These reinforcements can be installed in each of the basic rollcages (drawings 1-4).



Dessin/drawing No 1



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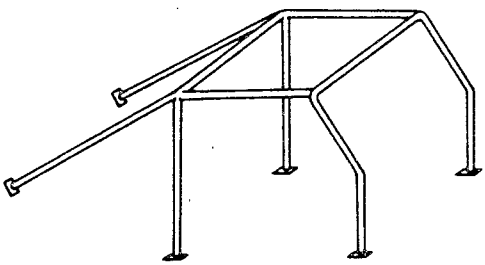

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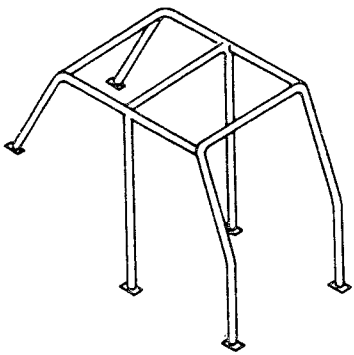

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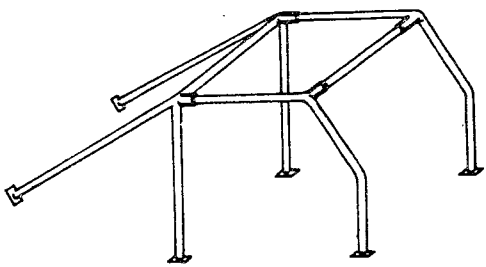
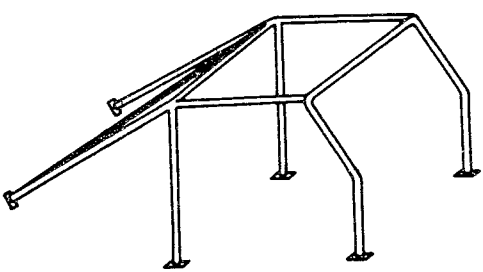


Dessin/drawing No 4a



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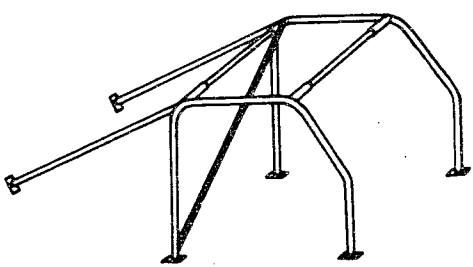

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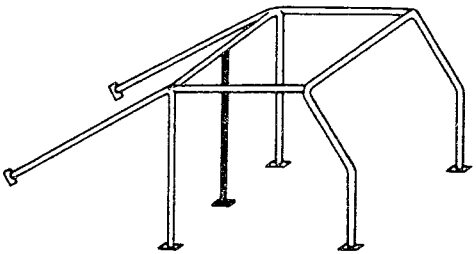

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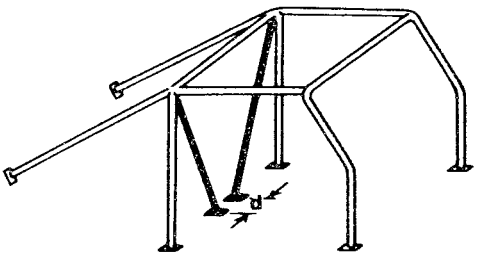
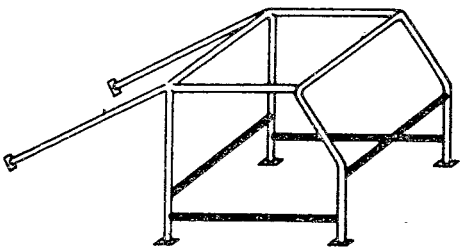


Dessin/drawing No 8
(d ≤ 30 cm)



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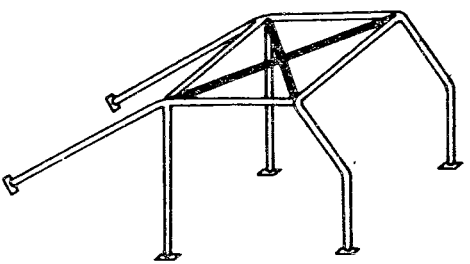

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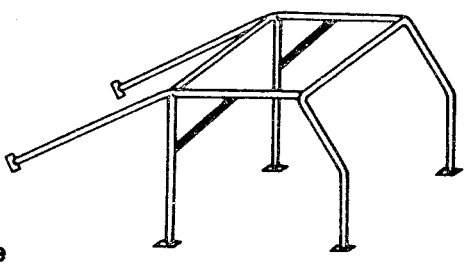
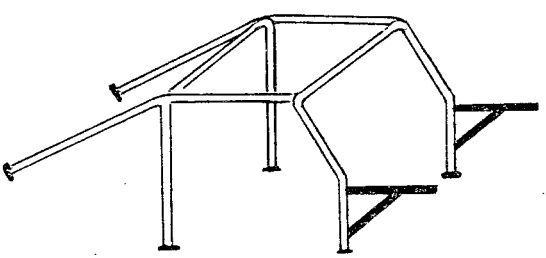


Dessin/drawing No 11

1 — Plancher de la voiture/Car floor
2 — Plaque de renfort/Reinforcement plate
3 — Plaque d'attache/Attachment plate



Dessin/drawing n° 12

8.2.2) **Technical specifications**

8.2.2.1) **Main and front and lateral rollbars**

The rollbars must be in a single piece. Their construction must be impeccable without unevenness or cracks. The fitting must be done in such a way it marries the interior shape of the car, or straight if it cannot be directed upwards. If it is necessary for the lower parts of the rollbar to be rounded, these parts must be strengthened and follow the interior shape exactly.

Minimum bending $r_m = 3\times$ tube diameter.

In order to get an efficient installation of the roll-cage, it is allowed to locally modify the original upholstery, directly on the legs of the roll-cage, for example by cutting or embedding (deformation).

This is only valid for the vertical pillars A and B and for the longitudinal upright at the front door level.

However, this modification can in no case allow the removal of entire parts of the upholstery.

8.2.2.2) **Fixation of the rollbars to the body**

Minimum fixations for the safety rollcage:

1 for each pillar of the main or lateral rollbar.

1 for each pillar of the front rollbar.

1 for each pillar of the rear longitudinal strut.

1 for each pillar of the main rollbar, and each rear pillar of the lateral rollbar at the fixation point for the front seat belt, or in the approximate area of this position.

The fixation of the rollbar pillars must be done with at least 3 bolts.

The attachment points of the rollbars on the body must be reinforced with a steel plate of a least 3 mm thick and with a surface area of 120 cm^2, welded to the body.

The various possibilities are given in drawings 12 to 18.

Hexagonal bolts or similar, of a minimum diameter of 8 mm (minimum quality 8-8 as per the ISO specifications) shall be used.

The nuts shall be self-tapping, self-locking or fitted with washers.

These fixations represent a minimum. It is possible to increase the number of bolts, to weld the steel rollbar to the bodyshell.

8.2.2.3) **Longitudinal Struts**

They must be fixed to the left and to the right above and outside the main rollbar, then going directly backwards and as near as possible to the interior side contour.

A rounded construction (with a large bend) is allowed if it is placed a near the roof as possible.

The diameter, the thickness and the material of the longitudinal struts should correspond to the norms fixed for the rollcages.

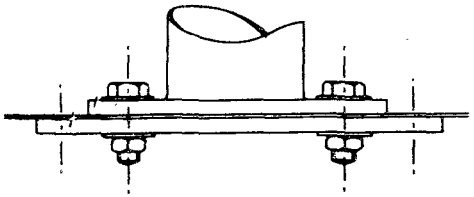
The forces must be efficiently divided and absorbed. The attachment points must be strengthened by plates if their location does not allow them to absorb forces. (See drawing 19).

8.2.2.4) **Diagonal Struts**

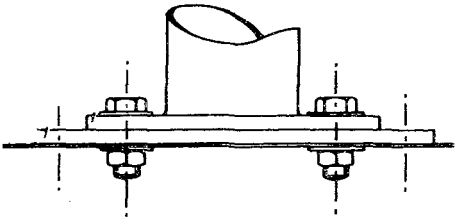
With the exception of rallies, the installation of at least one diagonal strut is obligatory.

Their construction must be carried out in accordance with drawings 5 to 8 without bends.

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



Dessin/drawing No 12



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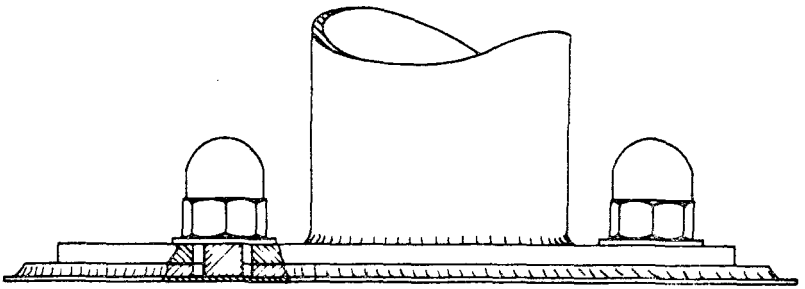
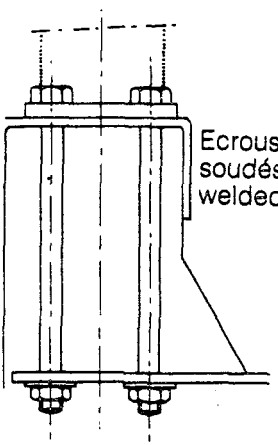
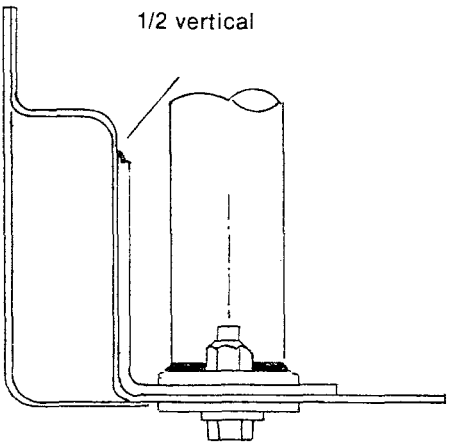


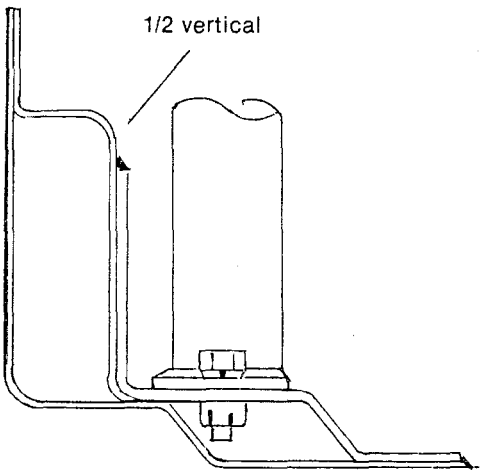
Dessin/drawing No 13a



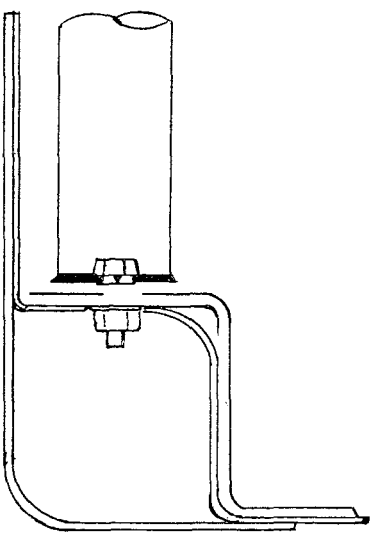
Dessin/drawing No 14



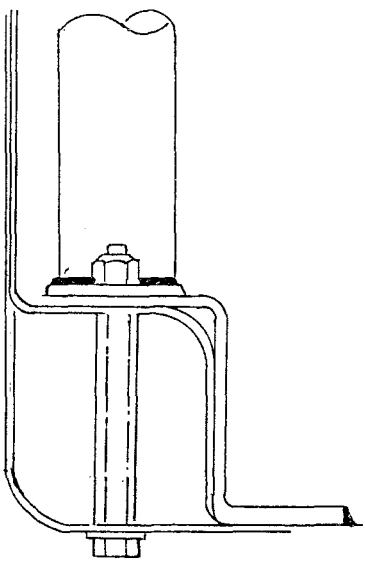
Dessin/drawing n° 15



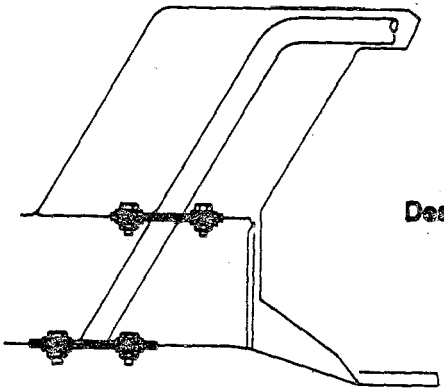
Dessin/drawing n° 16



Dessin/drawing n° 17



Dessin/drawing n° 18



Dessin/drawing No 17

They must preferably have the same diameter as the tubes of the main structure.

8.2.2.5) **Optional reinforcements of the rollcage**
The diameter, the thickness and the material of the reinforcements must correspond to the norms fixed for the rollcages.
They shall be either welded into position or installed by means of a detachable connection (obligatory for the front transversal reinforcements).
The reinforcement tubes should never be attached to the actual bodywork of the car.

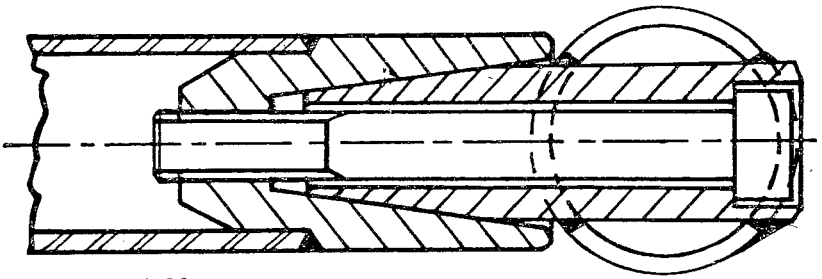
8.2.2.5.1) **Transversal struts**
The fitting of 2 transversal struts as shown in illustrations 9 and 10 is permitted. The transversal strut fixed to the front bar must not, however, encroach upon the space reserved for the occupant(s). It must be placed as high as possible under the dashboard and must be detachable.

8.2.2.5.2) **Longitudinal struts (lateral protection)**
The fixing of a longitudinal strut at the side(s) of the vehicle at door level is permitted. The tube making up this reinforcement must be built into the safety rollcage and its angle with the horizontal tube must not exceed 15° (angled downwards towards the front). No point of the side protection should be higher than on third of the total height of the door measured from the base of the door.

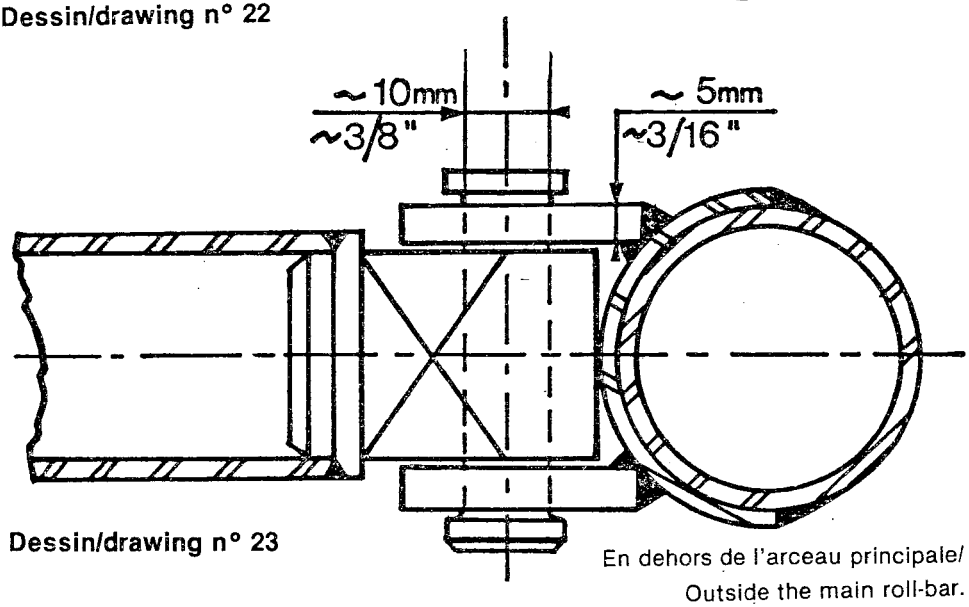
8.2.2.5.3) **Roof reinforcement**
The reinforcement of the upper part of the rollcage by the strut(s) as shown in illustration 10 is permitted.

8.2.2.5.4) **Angle reinforcement**
The reinforcement of the upper angles between the main rollbar and the longitudinal connections with the front rollbar is permitted, as is the reinforcements of the upper rear angles of the lateral rollbars, as shown in illustration 11.
The upper fixation of these reinforcements shall, under no circumstances, be situated to the fore of the middle of the longitudinal linking tube, and their lower fixation shall, under no circumstances, be situated lower than the middle of the vertical pillar of the rollbar.

8.2.2.6) **Padding for protection**
The padding of the dangerous points on the rollbars is recommended in order to prevent injury.

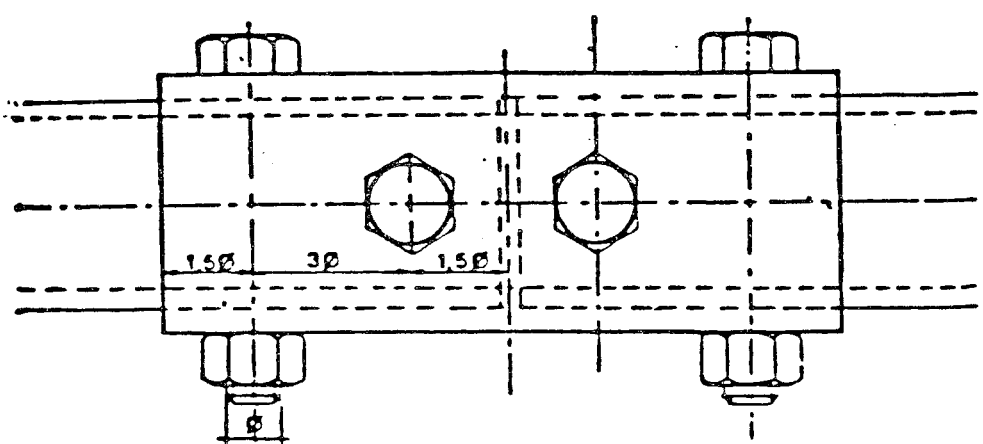


Dessin/drawing n° 22



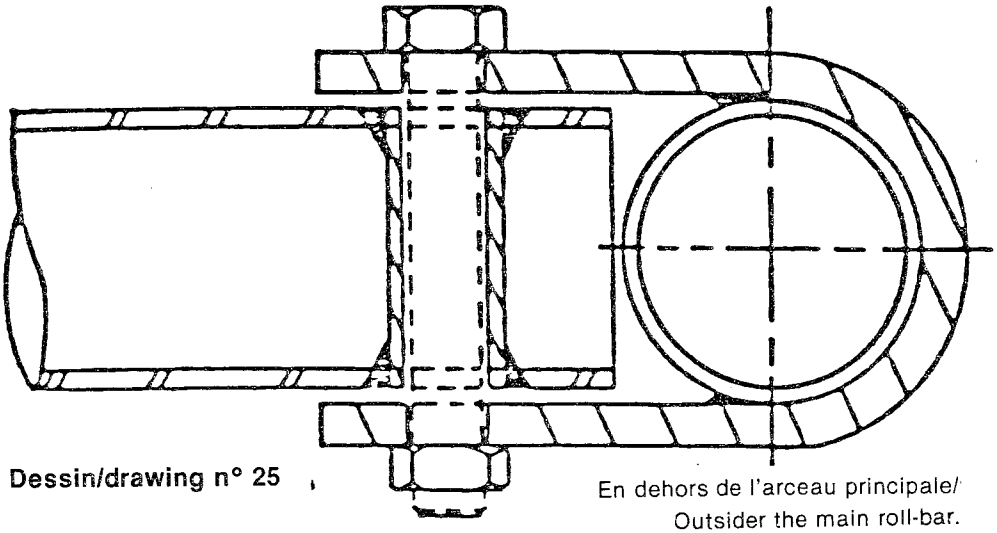
Dessin/drawing n° 23

En dehors de l'arceau principale/
Outside the main roll-bar.



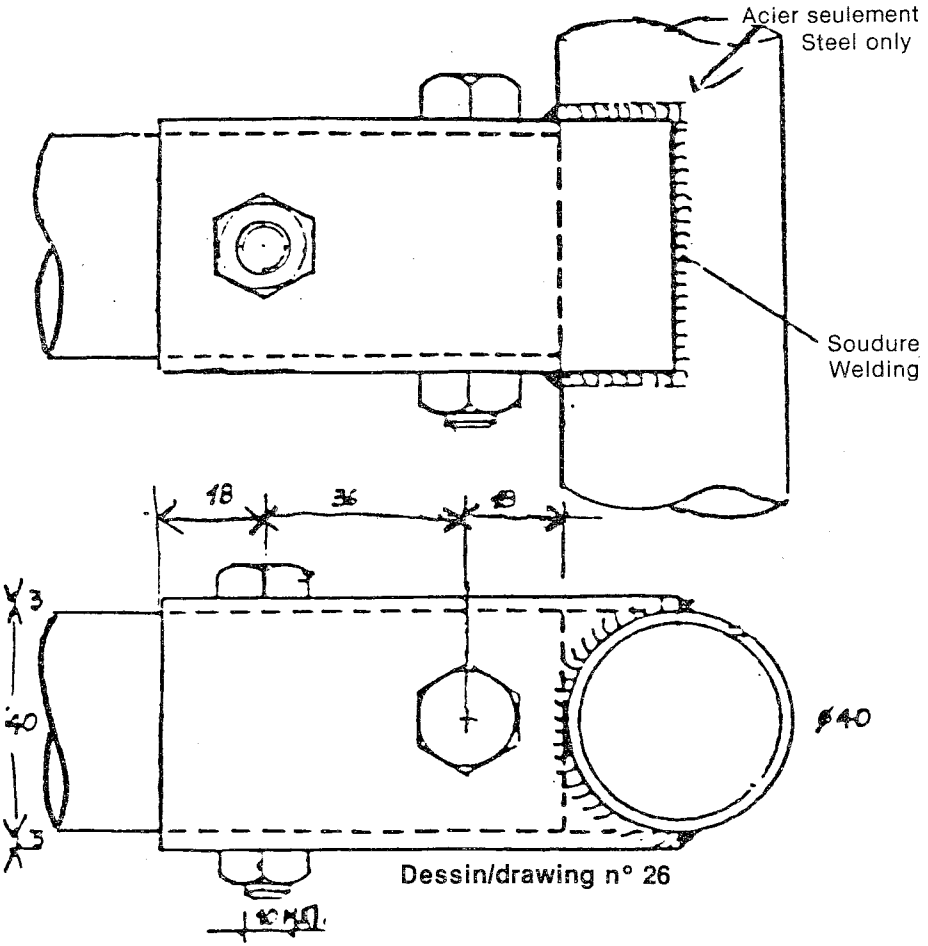
Dessin/drawing n° 24

∅ = 14 mm (tube ≧ 40 mm < 50 mm dima. ext.)
16 mm (tube ≧ 50 mm diam. ext.)



Dessin/drawing n° 25

En dehors de l'arceau principale/
Outsider the main roll-bar.



Dessin/drawing n° 26

The rollbar may be covered with a detachable protective casing.

8.2.2.7) **Removable connections**

Should removable connections be used in the construction of the rollbar they must comply with or be similar to a type approved by the FIA (see drawings 22-26).

The screws and bolts must be of a sufficient minimum diameter, and of the best possible quality (preferably aircraft type).

8.2.2.8) **Welding instructions**

All welding should be of the highest quality possible with full penetration (preferably arc welding and in particular heliarc).

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

When using heat treated stell the special instructions of the manufacturers must be followed (special electrodes, helium protected welding).

It must be pointed out above all else that the manufacture of heat treated steel, and high carbon steels may cause certain problems and that bad construction may result in a decrease in strength (crinking) and an absence of flexibility.

8.3) MATERIAL PRESCRIPTIONS

Specifications of the tubes used:

Minimum material:	Minimum tensile strength:	Minimum dimensions:
Cold drawn seamless carbon steel	350 N/m²	38 x 2.5 or 40 x 2 in mm

These dimensions represent the minima allowed.

In choosing the quality of the steel, attention must be paid to the elongation properties and the weldability.

8.4) REGULATIONS FOR CARS

8.4.1) **Production Cars (Gr. N)**

The fitting of a rollbar is compulsory for all events.

8.4.2) **Touring Cars (Gr. A) and Sports Cars (Gr. B)**

The fitting of a safety cage is obligatory for all events. The diagonal strut although not obligatory for rallies, is desirable.

Rules of application are as follows:

— up to 2,000 cm³: rollbar obligatory, rollcage optional.
— More than 2,000 cm³: rollcage obligatory.

8.5) EXCEPTIONS

However manufacturers of safety rollcage may also propose a rollbar of free conception to an ASN for approval as regards the material used, the dimensions of the tubes and the implantation of the braces provided that the construction is certified to withstand stress minima given hereafter (and applied simultaneously):

— 1,5 w lateral*;
— 5,5 w fore and aft;
— 7,5 w vertical.

*w = weight of the car + 75 kg.

It must be possible to submit a certificate on a form approved by the ASN to the event's scrutineers. It must be accompagnied by a drawing or photo of the rollbar in question declaring that this rollbar can resist the forces mentioned above.

Rollbars must not be modified.

8.6) HOMOLOGATION

The FISA being aware of the problem of habitability being raised by the use of safety rollcages proposes that each car manufacturer recommends a type of safety rollcage complying with FISA standards.

This rollbar must be described on an homologation extension form presented to the FISA for approval and must not be modified (see Article 8.2.1.1).

9) REAR VIEW

This shall be provided by a inside mirror commanding a rear window with a least a 10 cm vertical opening, maintained along a width of at least 50 cm. However, if the straight line connecting the upper and lower edges of the rear window opening makes an angle inferior to 20° with the horizontal, the rear view must be efficiently obtained by other means (two outside mirrors or any other system of equivalent efficiency). Furthermore, all these cars should be equipped with two outside mirrors for circuit events.

Application : obligatory for all Groups.

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 and it must not be used to lift the car. It will be clearly visible and painted in yellow, red or orange.

Application : All Groups.

11) WINDSHIELD

A windshield made of laminated glass is compulsory.

Application : All Groups.

12) SAFETY FIXING DEVICES FOR WINDSHIELDS

Such devices may be used freely.

Application : optional for all Groups.

13) GENERAL CIRCUIT BREAKER

The general circuit breaker must cut all electrical circuits, battery, alternator or dynamo, lights, hooters, ignition, electrical controls, etc.). 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 mouting of 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.

Application: compulsory fitting for all Touring Cars (Gr. A) and Sports Cars (Gr. B) cars taking part in speed events on circuits or hill-climbs. The fitting is recommended for other events. Obligatory for Production Cars (Gr. N) in circuit events, optional in the other cases.

14) FIA APPROVED SAFETY FUEL TANKS

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

In order to obtain the FIA's agreement, a manufacturer must have proved the constant quality of its products 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/Spec/FT3:**
The technical specifications for these tanks are available, on request, from the FISA Secretariat.

14.3) **Ageing of tanks:**
The ageing of safety tanks entails a consideral reduction in the strength characteristics after approximately five years.
Therefore, all fuel cells must be replaced by new ones at the latest five years after the fabrication date indicated on the cell.

14.4) **List of agreed manufacturers:**

Federal Republic of Germany:
Uniroyal Englebert GmbH, Westerbachstr. 122, 6230 Frankfurt/Main 80.

United States:
Don W Allen Inc, 401 Agee Road, Grants Pass, Oregon 97526.
Aero Tecs Labs, Hewson Avenue, Warcick, NJ 07463.
Fuel Safe Corporation, 15545 Computer Lane, Huntington Beach, California 92649.

France:
Kléber Colombes, Division Tissus Enduits et Applications, 4, rue Lesage-Maille, 76320 Caudebec-les-Elbœuf.
Ets J. RICHE - BP 14 - 14690 Pont-D'Ouilly.
Société Lyonnaise des Réservoirs Souples, 18 rue Guillaume-Tell, 75017 Paris.
Superflexit SA, 45, rue des Minimes, 92405 Courbevoie.

Great Britain:
Marston Palmer Ltd, Wobaston Road, Fordhouses Wolverhampton, WV10 6QJ Staffs.
Premier Fuel Systems Ltd, Willow Road, Trent Lane Industrial Estate, Castle Donington, Derby DE7 2NP.

Italy:
Gipi, Via Abruzzi 7, 20090 Opera, Milano.
Pirelli, Viale Rodi 15, Milano.

Japan:
Fujikura Rubber Works Ltd., N° 20, 2-chome, Nishigotandu, Shinagawa-ku, Tokyo.
Kojima Press Ltd, 3-30 Shimoichibacho Toyota, Aichiken.
Sakura Rubber Co Ltd, 48-14-1 Chome Sasazuka, Shibuya Ku, Tokyo.
Sumitomo Electric Industries Ltd, 15-5 Chome Katahama, Migashi Ku, Osaka.

14.5) **Applications of these specifications:**
Touring Cars (Gr. A) and Sports Cars (Gr. B) cars may be equipped with a safety fuel tank if the modifications necessary do not exceed those allowed by the regulations.

15) PROTECTION AGAINST FIRE
An efficient protective screen must be placed between the engine and the occupants' seat, in order to prevent the direct passage of flames, in case of fire.