



## AWDC Malta General Regulations for Roll Cages, Seat Belts, Helmets, and Overalls – applicable to all classes.

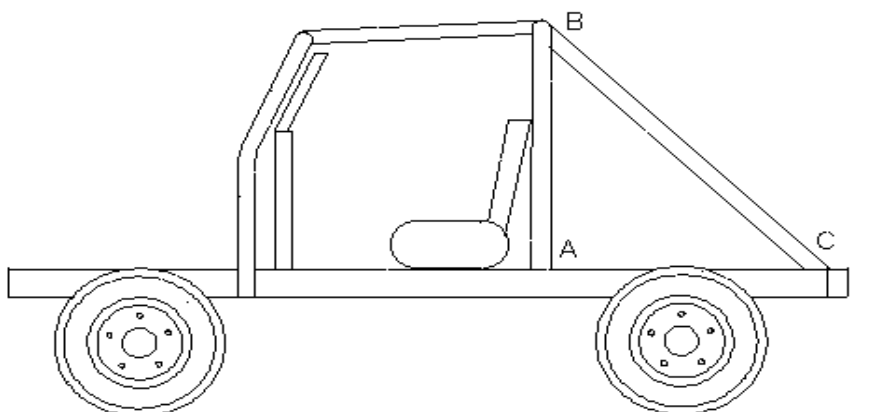
These rules are applicable from 1<sup>st</sup> October 2018 onwards.

### ROLL OVER BARS

Aluminum alloy roll over bars and roll cages are banned in all forms of motorsport where a roll cage/bar is required to be fitted. The use of roll bars and roll cages is advised for all events. Roll Cages are mandatory in Timed trials, Competitive Safaris, Hill Rallies, Team Recovery and Challenges and Modified/Extreme Classes events. They may also be a requirement in any other competition if stated in the Event ASRs.

#### General Consideration

- 1.1.1 The basic purpose of the roll over bar is to protect the driver/passenger if the vehicle turns over or is involved in a serious accident. This purpose should not be forgotten, and in consideration of this, all roll bars and roll cages should be built to the following specification detailed in Section 18.3 or an approved vehicle which should in any case incorporate many of the provisions detailed therein.
- 1.2 The roll over bar must be designed to withstand compression forces resulting from the weight of the vehicle coming down on the roll bar/cage structure, and to take fore and aft loads resulting from the vehicle skidding along the ground on its roll structure.
- 1.3 All vehicles must have a full roll cage with two rear facing braces and a cross brace situated either within the main rear hoop or as close as possible to it. The main hoop and rear braces must be connected directly to the chassis with welding of the highest quality with full penetration.
- 1.4



- A Foot of main hoop in front of load space, close behind driver's seat
- B Top of bar inside roof or 2"/50mm above driver's head/helmet.
- C As far aft as possible in the load area.

## 2. All Vehicles

As a general rule, the safety roll over bar structure must be made of two hoops, one behind the front seats and the other following the windscreen pillars. The structure must be



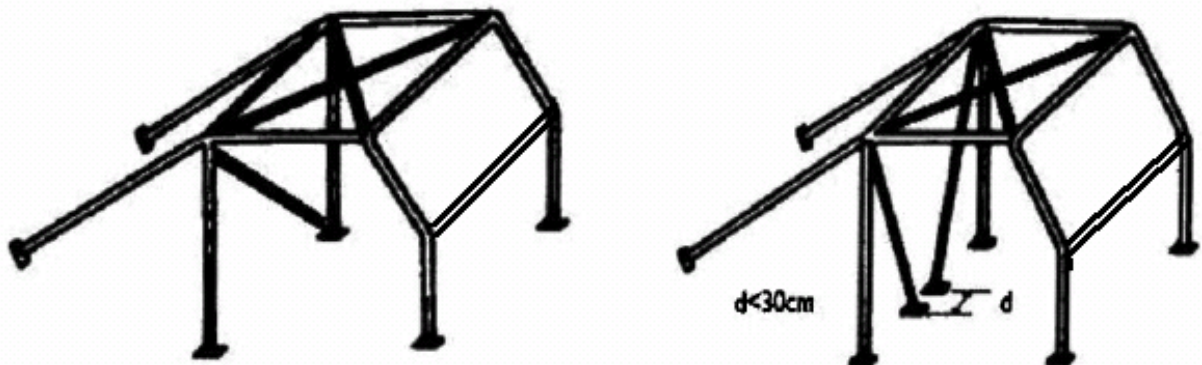
constructed in such a way as not to obstruct access to the front seats and not encroach upon the driver/passenger space. It may encroach upon the rear passenger space and pass through the rear upholstery. The main hoop must be placed as near as possible to the roof. A longitudinal support at door level providing it forms part of the structure and is of similar tube dimensions has to be fitted.

### 3. Fabrication

There are three classifications of vehicle design, which, whilst requiring the same principles of roll cage design, may employ different mounting methods.

- (a) **Monocoque**, being a vehicle of unitary construction employing an integral chassis structure.
- (b) **Chassied**, being a vehicle employing a separate chassis structure from the body or superstructure.
- (c) **Spaceframe**, being a vehicle constructed entirely from a framework including an integral roll cage, of tubes and/or box sections.

All vehicles must comply with one of the following roll cage drawings : Diag 1



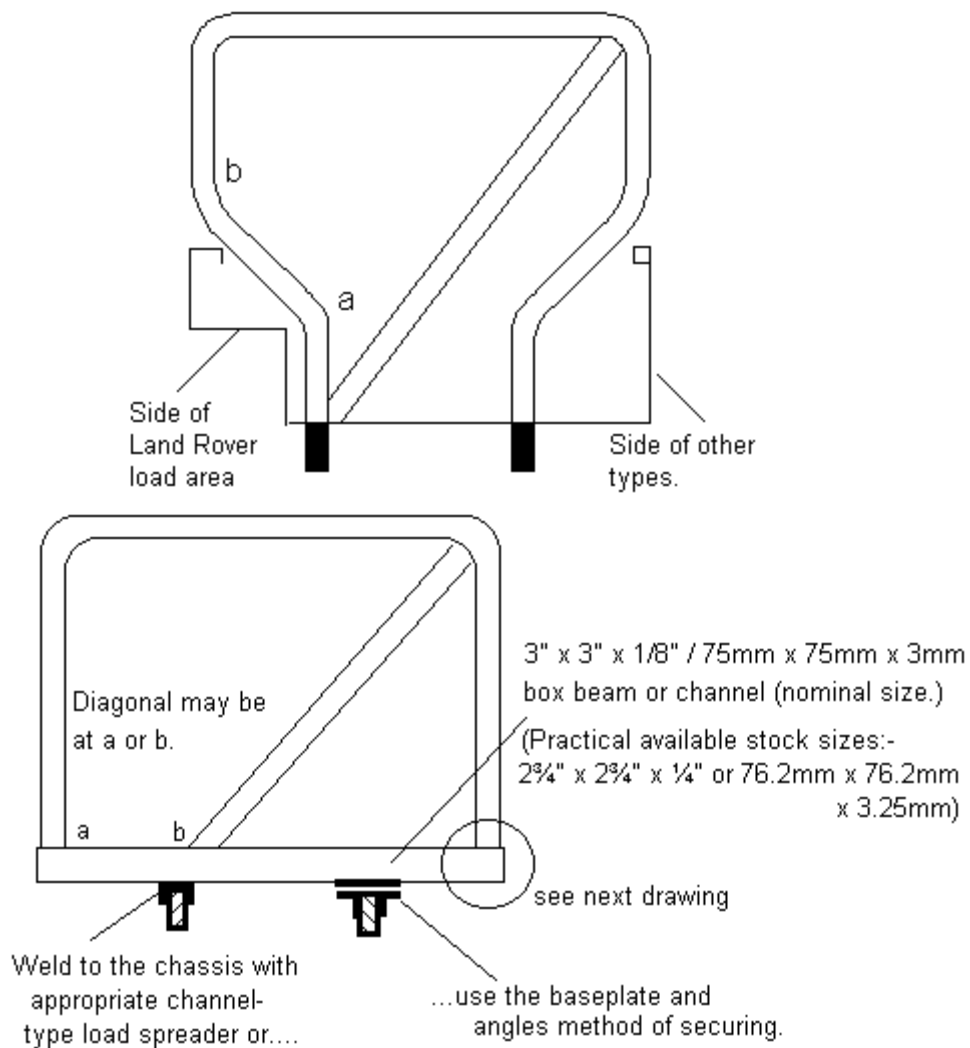
- 3.1 One continuous length of tubing must be used for the hoop member with smooth continuous bends and no evidence of crimping or wall failure. Hoop corners must not be separate sections and clamps or angled corners are prohibited. Corners where the tube has flattened or is showing signs of 'crimping' are not allowed, neither are tube ends flattened or crimped for ease of welding. The ratio of minimum diameter to major diameter is 0.9 or greater. Tube ends should be correctly shaped to fit the bar they are joined to. Bend radius must be at least three times the tube diameter.
- 3.2 All welding must be of the highest quality with full penetration. Wherever possible gas shielded arc welding should be used.
- 3.3. For monocoque chassis, consideration should be given to using a 360 degree hoop completely around the inside of the vehicle, thus substituting for a frame.
- 3.4. Bracing bars, both rear and diagonal, may be made detachable or jointed



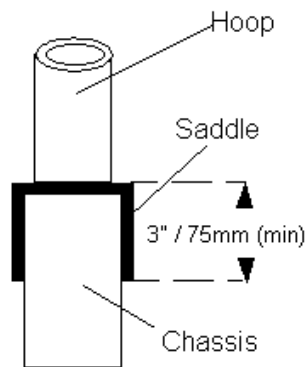
- 3.5 Welds should be cleaned, but **not ground or filed** after completion.
- 3.6 For space frame vehicles it is important that the roll bar structure is attached in such a way as to spread the load over a wide area. The roll bar should be designed as an extension of the frame. Reference must be made to the Chief Scrutineer if a difficulty with rear engine installations in respect of fitting a diagonal brace is encountered.

**4 Mounting of Rollcages to the Bodyshell/Chassis**

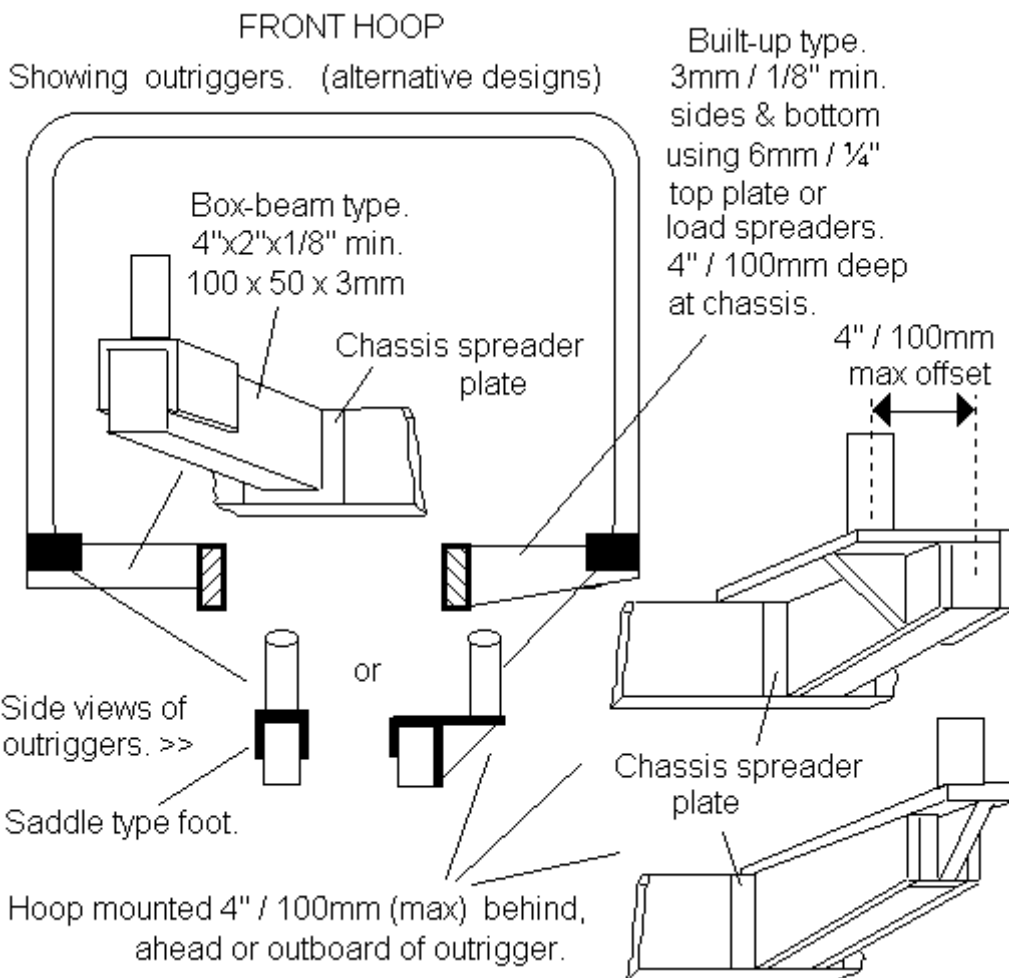
- 4.1. The main hoop behind the Driver's seat on Chassied vehicles, must have it's roll cage mounted directly to the chassis according to diagram

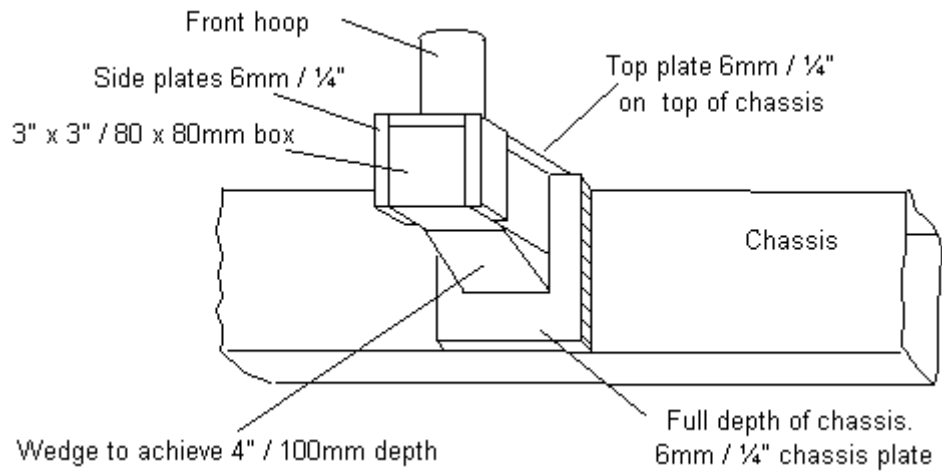


- 4.2. Where the main hoop connects to the chassis, a reinforcement made of an inverted 'U' channel must be locally welded between the tube and the chassis. There must be no gaps between the channel and the chassis and the 'U' channel must be 3" deep, 6 mm thick and with adequate clearance on both sides of the pipe for a full penetration weld. See diagrams below of suggested methods.

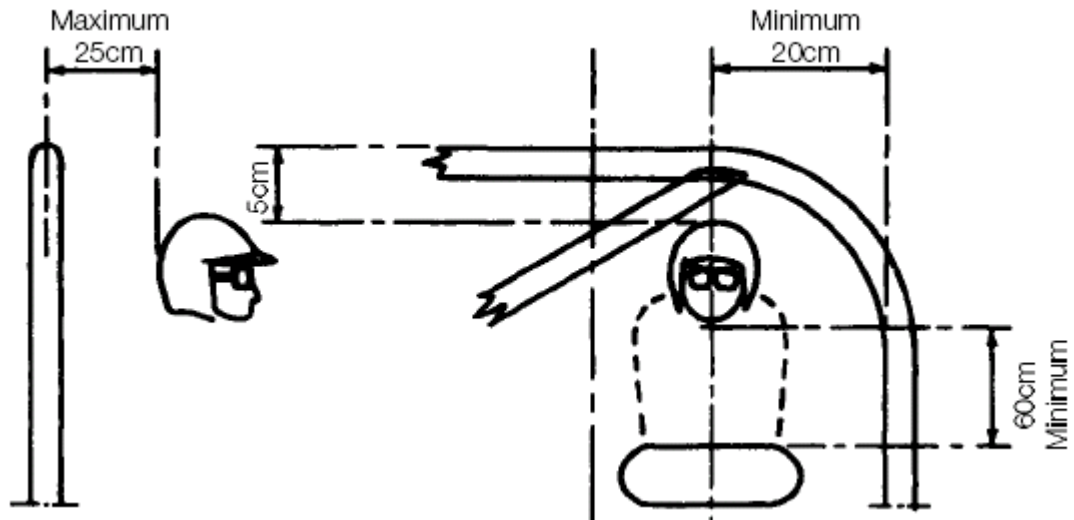


- 4.3. The Front hoop bulkhead assembly should be welded to fabricated outriggers made up of box channel 75 mm x 50 mm x 3 mm welded onto a base spreader plate of 6" by the depth of the chassis of 6mm. Additionally a flatbar 6mm must be welded on the horizontal plane across the chassis. See diagrams below of suggested methods.





- 4.4. Braces must comply with relevant material dimensions, refer to Section 18.5.
- 4.5. An effective roll over bar must be fitted of a height not less than 50 mm at its top edge above the helmet of the normally seated driver. It must be wider than the driver's shoulders at the height. diagram of driver 20cm



**5. Materials Specifications**

- 5.1. It must be constructed of steel tubing of minimum:

**Seamed Steam Pipe 'Blue Band' quality or**  
*(Galvanised tubes are prohibited)*

<b>Description</b>	<b>Inside Diameter</b>	<b>Practical Imperial Inside Diameter Size Available Locally</b>
Front Hoop	40 mm	1½"
Main Hoop	51 mm	2"
All remaining Tubes	40 mm	1½"



**Cold Drawn Seamless Carbon Steel**

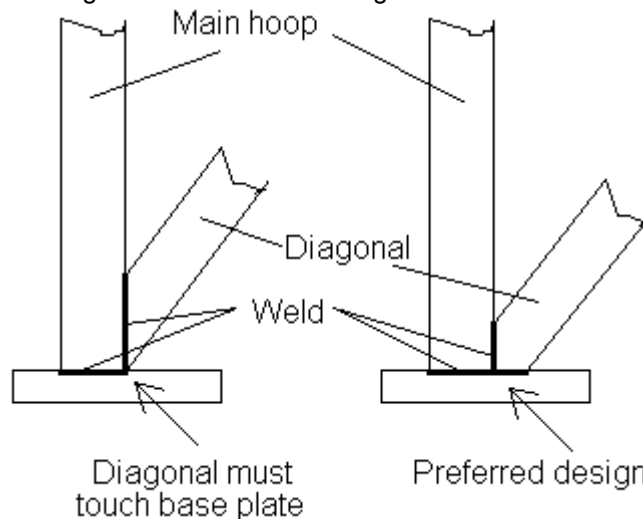
<i>Description</i>	<i>Outside Diameter</i>	<i>Wall Thickness</i>	<i>Practical Size Available Locally</i>
All Tubes	48 mm	2.5 mm	48.3 mm x 3.7 mm

**6. Other Considerations**

- 6.1 It should have a hole of 6 mm (0.25 in.) drilled in the underside of each tube for checking the tube thickness. It should have the top bar straight or curved, but no tubes meeting in an inverted 'V'. It must be effectively braced to a structural member.
- 6.2 All vehicles must have the main roll over bar hoop as close to the roof as possible.
- 6.3. Modified vehicles are advised to fit a safety roll over bar to the following minimum requirements: minimum height 711 mm (28 in.) from the rear of the uncompressed seat cushion, of minimum flat width 381 mm (15 in.) running into radius corners and affording driver and passenger equal protection. It must be mounted to a structural member with front mountings not less than the cockpit width and braced rearward.

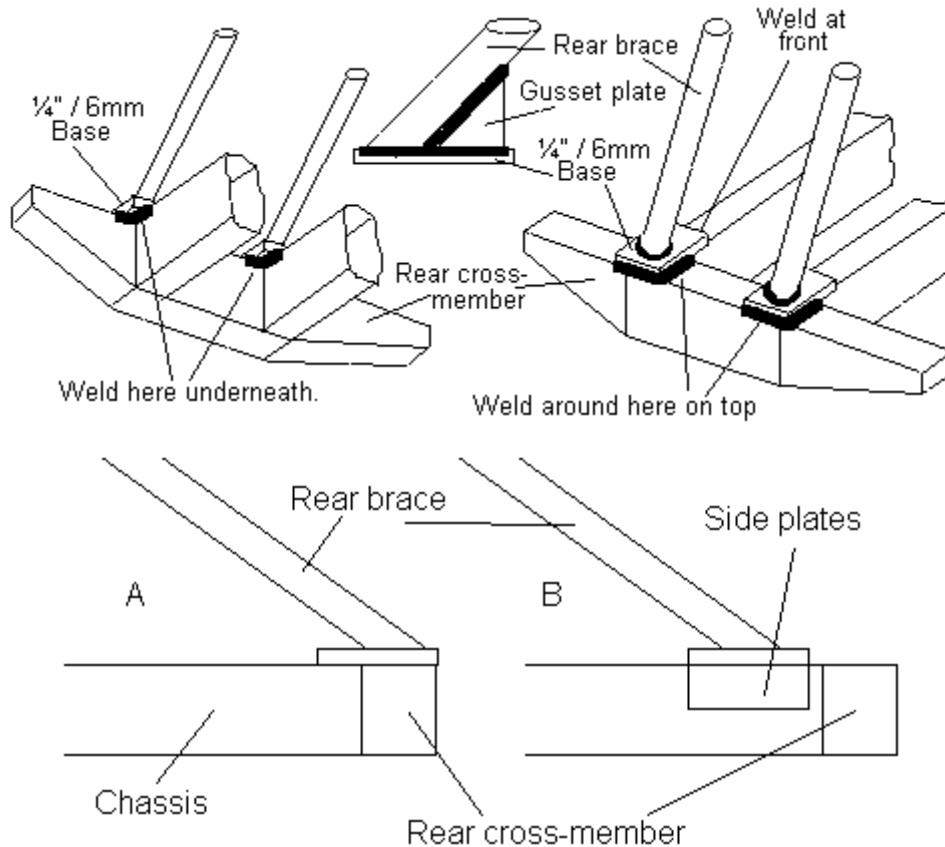
**7. Diagonal Struts/Cross Braces**

- 7.1. FRONT HOOP must have a horizontal tube where the pipe is bent below the windscreen. see diagram 1
- 7.2. The ROOF CROSS BRACE should also connect front hoop to rear hoop diagonally at the corners. see diagram 1. 2 roof diagonals should be present connecting the rear hoop to the front hoop.
- 7.3. The DIAGONAL or CROSS BRACE in the main hoop behind the driver's seat should meet the roof diagonal and base of roll cage.



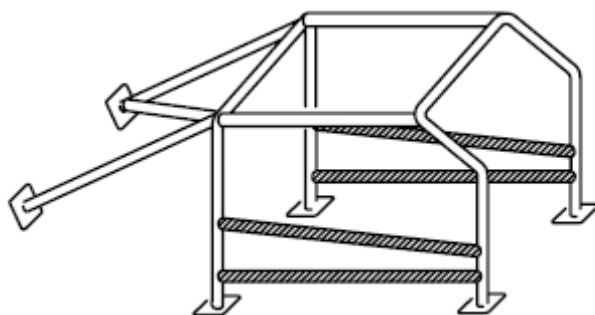
- 7.4. The front hoop and the rear hoop are to be connected by two lateral tubes joint at the uppermost corners of the bends touching roof diagonal.
- 7.5. REAR BRACES should be mounted directly from the chassis to the uppermost corners of the main roll cage and in line with the lateral roof tubes. Diagonal struts and rear braces must not be bent in any way.

- 7.6. The rear braces must have a SPREADER PLATE consist of a 'U' channel on the chassis. In the case of the braces reaching the rear cross member a base plate of 5" by the width of the chassis x 6 mm thickness.



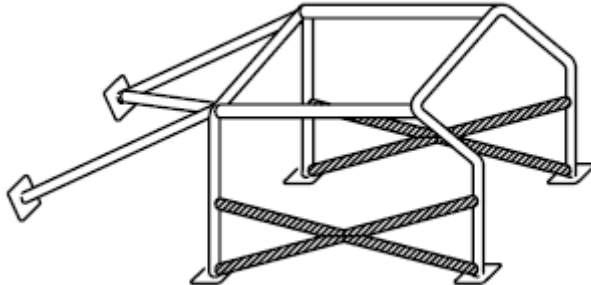
**8. SIDE DOOR PROTECTIONS**

- 8.1 Vehicles with NO DOORS should have a lateral tube joining the front hoop to the rear hoop above the driver seat. It must not be higher than one third of the door height above the sill and angled at more than 5 degrees with the horizontal. see diag, alternative placement shown.





- 8.2 Vehicles with DOORS should have two crossed tubes welded from the front hoop to the rear hoop. see diagram



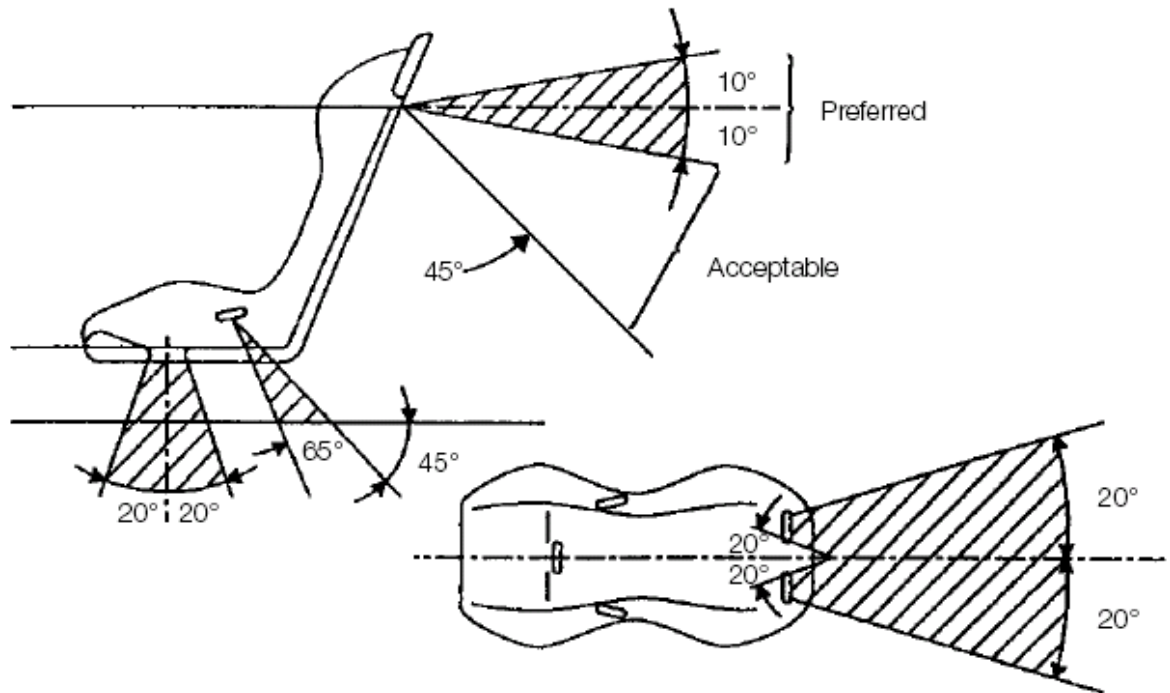
## 9. CRASH HELMETS

Crash helmets to Scrutineers approval must be worn at all times during training, practice and competing. It is strongly recommended that Flame-Resistant face masks, balaclava or helmet bibs be worn with helmets. Helmets must always be a good snug fit. The chin strap must pass under the chin and be securely fastened to maintain tension at all times. Chin cups are prohibited. There must be no alteration to the structure of the helmet.

## 10. SEAT BELTS

- 10.1. All Safety Belts must be made out of approved materials and anchored securely in the vehicle. The minimum requirement for AWDC events is a three point full harness approved seat belt with fixation points on the chassis of the vehicle on either side and to the rear of the driver's seat. Four, five or six point full harnesses are strongly recommended.
- 10.2. It is not permitted to mix parts of seat belts. Only complete sets as supplied by manufacturers should be used.
- 10.3. The anchorage points to the rear should be positioned so that the strap from the shoulder is as near horizontal as possible. It should not be located on the floor directly behind the driver/co-driver. drawing





## 11 OVERALLS

- 11.1. Clean Flame-Resistant Proban treated overalls are recommended at all times.
- 11.2. Competitors' arms and legs must be covered at all times during training, practice and competing. Competitors are also strongly advised to wear Flame Resistant gloves, socks, balaclava and underwear. **No nylon or other highly flammable material may be worn.**