

BARBADOS HISTORIC RALLY CARNIVAL

SAFETY REGULATIONS

1. General

- a. A car, the construction of which is deemed to be dangerous, may be excluded by the Clerk of the Course or Stewards of the meeting.
- b. A Vehicle can only compete in a BMF sanctioned event if it has been scrutineered by a BMF member club and a BMF 'Competition Logbook' issued. Any major damage to the vehicle or fundamental change in the specification as governed by these Safety Regulations would require re-scrutineering and appropriate amendments made in the Log Book.
- c. It must be emphasized that these are minimum requirements only. The onus is on the competitor to ensure that their vehicle is adequately prepared for its intended use.

2. Lines and Pumps

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

3. Braking system

A double circuit operated by the same pedal and controlling all wheels is required. In case of a leakage at any point of the brake system or of any kind of failure in the brake transmission system, the pedal must still control at least two wheels.

4. Safety Belts

- a. Wearing of two shoulder straps and one lap strap is mandatory. They must be attached to anchorage points on the bodyshell: two for the lap strap, two or possibly one symmetrical about the seat for the shoulder straps.
- b. Belts must be equipped with turn buckle, over-centre or push button? release and be manufactured by a recognised seatbelt manufacturer.
- c. Belts must have a minimum of 3" web straps unless they are labeled to be used with a HANS Device and are being worn in conjunction with said device.
- d. Installation. 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 but 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. For a 4-point harness, the shoulder straps must be installed 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.
- e. If installation on the series anchorage points is impossible, new anchorage points must be installed on the bodyshell or the chassis. The shoulder straps may also be fixed to the safety rollcage or to a reinforcement bar by means of a loop. 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.
- f. 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.
- g. Use - A safety harness must be used in its entirety 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.

h. Exceptions: Autocross, dexterity tests, off-road trials and drag racers (cars slower than 14sec ¼-mile or 9sec 1/8-mile) where only OEM seatbelts are required.

5. Extinguishers

- a. The use of the following products is prohibited: BCF, NAF.
- b. All cars must carry at least one hand held extinguisher.
- c. Permitted extinguishants: AFFF, FX G-TEC, Zero 360, Viro3, powder and any other FIA approved extinguishants.
- d. Minimum quantity of extinguishant: AFFF: 2.4 litres; FX G-TEC: 2.0 kg; Viro3: 2.0 kg; Zero 360 2,0 kg; Powder: 2.0 kg;
- e. Pressure: AFFF – 12bar, Powder – 8-13.5bar. Extinguishers must be equipped with a means of checking the pressure of the contents.
- f. The following information must be visible on each extinguisher: capacity, type of extinguishant, weight or volume of the extinguishant.
- g. Extinguishers must be adequately protected. Their mountings must be able to withstand a severe deceleration. Only quick-release metal fastenings with metal straps will be accepted on hand-held extinguishers.
- h. Extinguishers or their actuating devices must be easily accessible for the driver and the co-driver.
- i. Exceptions: Autocross, dexterity tests, off-road trials and drag racers (cars slower than 14sec ¼-mile or 9sec 1/8-mile).

6. Rollover Structures

- a. Club scrutineers may accept competition car rollcages if:
 1. The rollcage specifications are as listed in this section and the installation and welding is of satisfactory quality. Rollcage designs must be authorized by the club scrutineer in writing **before fitting**, or,
 2. The rollcage is installed in an FIA homologated car, is in its original specification and the vehicle homologation papers are presented to the scrutineer for confirmation, or,
 3. The rollcage has been homologated by a National Governing Body (ASN) in accordance with FIA regulations regarding same and the homologation form for the rollcage is presented to the scrutineer.
- b. Definitions:
 - Safety cage:** A structural framework designed to prevent serious bodyshell deformation in the case of a collision or roll.
 - Rollbar:** Structural frame or hoop and mounting points
 - Rollcage:** Structural framework made up of a main rollbar, front rollbar (or of two lateral rollbars), their connecting members, one diagonal member, backstays and mounting points. (drawings 253-3 and 253-4).
 - Main rollbar:** Near-vertical frame or hoop located across the vehicle just behind the front seats.
 - Front rollbar:** Similar to main rollbar but its shape follows the windscreen pillars and top screen edge.
 - Lateral rollbar:** 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.
 - Door Bar:** Bar or bars welded or bolted horizontally between the front and main rollbars. If bolted, bolts must not be in shear.
 - Longitudinal member:** Longitudinal tube which is not a part of the main, front or lateral rollbar and linking them with the backstays.
 - 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.
 - Framework reinforcement:** Reinforcing member fixed to the rollcage to improve its structural efficiency.

SAFETY REGULATIONS

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

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.

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

c. Specifications: A Safety Cage must be designed and made so that, when correctly installed, it substantially reduces bodyshell deformation and 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 pass through the dashboard and front trim, as well as through the rear trim and rear seats.

d. Diagonal Members: at least one diagonal member must be fitted as per 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 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 removable. The lower end of the diagonal must join the main rollbar or 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.

e. Mounting of rollcages to the bodyshell (minimum):

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

- 1 for each of the front rollbar;

- 1 for each backstay.

Each mounting foot of the front, main and lateral rollbars must include a reinforcement plate at least 3mm thick. Each mounting foot must be attached by at least three bolts on a steel reinforcement plate at least 3 mm thick and of at least 120 cm² area which is welded to the bodyshell. Bolts must be of at least M8 size of ISO standard 8.8 or better. Fasteners must be self-locking or fitted with lock washers. In addition to these minimum requirements, more fasteners may be used, the rollbar legs may be welded to reinforcement plates or the rollcage may be welded to the bodyshell. Rollbar mounting feet must not be welded directly to the bodyshell without a reinforcement plate.

f. Backstays 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 mountings must be reinforced by plates.

g. 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.

h. Except for circuit and drag racing, longitudinal extensions from the main rollcage to suspension mounts are allowed but must not extend beyond the front and rear axle centre-lines.

i. All welding should be of the highest possible quality with full penetration and preferably using a gas shielded arc. Although good external appearance of a weld does not necessarily guarantee its quality, poor looking welds are never a sign of good workmanship.

j. Material specifications:

1. Seamless mild steel tubing with specifications of 38 mm by 2.5 mm or 40 mm by 2.0 mm with a minimum yield strength of 350 N/mm².
2. 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. If this ratio is exceeded the bends may be plated or gusseted.

3. The welding process must be MIG or TIG only.

k. Technical specifications of 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. All joints must be profiled. The vertical part of the main rollbar must be as straight as possible and as close as possible to the interior contour of the body shell. 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.

l. For vehicles not fitted with steel doors a double door bar installation is required (diagonal or parallel bars). 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.

m. Exceptions: Autocross, dexterity tests, off-road trials and drag races (cars slower than 14sec ¼-mile or 9sec 1/8-mile) do not require roll-over structures unless they have no roof, in which case the rollcage specification would be as per drawing 253-3/4. Drag racers faster than 14sec ¼-mile or 9sec 1/8-mile but slower than 12sec ¼-mile or 7.7sec 1/8-mile only require a main roll bar with single diagonal member and backstays.

7. Rear View

Minimum of a single inside mirror or two wing mirrors.

8. Towing Eye

All cars will be equipped with rear and front towing-eyes. Towing-eyes will only be used by organisers if the car can roll freely. It must be clearly visible and painted or marked in yellow, red or orange.

9. Electrical

a. Vehicles must have a general circuit breaker which must cut all electrical circuits, battery, Fuel pumps, alternator or dynamo, lights, ignition, electrical controls, etc. and must also stop the engine. It must be a spark-proof model, and be accessible from inside and outside the car. The external triggering system of the circuit breaker must be situated at the lower part of the windscreen. It must be marked by a red spark in a white-edged blue triangle with a base of at least 12 cm. The internal triggering system must be accessible to the driver while seated and strapped in.

b. Batteries, if located in the cockpit, must be secured in a sealed box that is vented to the exterior of the car unless it is a sealed battery. In either case it must be firmly secured, located behind the front seats and the terminals must be shielded with non-conducting material.

c. Exceptions: Autocross, dexterity tests, off-road trials and drag racers (cars slower than 12sec ¼-mile or 7.7sec 1/8-mile).

10. Protection Against Fire

a. The occupants' compartment must be completely sealed in a fire-proof manner from the engine compartment and the luggage compartment (if it contains an original fuel tank that does not meet the requirement laid out in section 15).

b. Fuel pumps, filters or lines located in the luggage or passenger compartment must be protected against damage from loose objects.

11. Seats, Attachments and Supports

a. Seats must be either original, modified only through the addition of accessories with a registered trade mark, or manufactured by an approved manufacturer and not modified. In all these cases, a headrest must be present for each occupant.

b. If the original seat or attachments or supports are changed, the new parts must either be approved for that application by the scrutineer or must comply with the following specifications (see drawing 253-52):

SAFETY REGULATIONS

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.
2. The minimum area of contact between support, shell/chassis and counterplate is 40 cm² for each mounting point.
3. If rails for adjusting the seat are used, they must be those originally supplied with the car or with the seat.
4. The minimum thickness of the supports and counterplates is 3 mm for steel and 5 mm for light alloy materials.
5. The minimum longitudinal dimension of each support is 6 cm.

12. Clothing

- a. Driving suits (cars) – occupants must wear one or two piece suits of single layer (minimum) Nomex. Shoes must be worn at all times by all occupants and must be laced and closed. Proban or other chemically treated cotton suits are forbidden. All under-clothing must be cotton or Nomex.
- b. Helmets – occupants must wear helmets that meet SNELL95 or BS6658-85A/FR minimum standards. Helmets that are damaged or show signs of repairs and/or repainting may be rejected by the scrutineer. Names, allergies and blood groups must be clearly marked on helmets.
- c. Driving suits (bikes) – riders must wear riding leathers designed for bike racing that are suitably padded.
- d. Driving suit exceptions: Autocross, dexterity tests, off-road trials and drag racers (cars slower than 14sec ¼-mile or 9sec 1/8-mile, only helmets required).
- e. Effective 1st January 2012 the minimum helmet specification will be Snell SA2000

13. Fasteners/locks

- a. At least two external manual fasteners must be fitted to the bonnet and boot lid/hatch. The original locking mechanism must be rendered inoperative or completely removed.
- b. The original locking mechanism on the driver and passenger doors must be rendered inoperative, either permanently or temporarily.
- c. Steering column locks must be disabled.
- d. All articles or equipment which, if left loose, could present a hazard to occupants shall be properly secured or removed from the vehicle prior to competition.
- e. Exceptions: Autocross, dexterity tests, off-road trials and drag races (cars slower than 12sec ¼-mile or 7.7sec 1/8-mile).

14. Windows and nets

- a. Where specific regulations allow the replacement of glass with polycarbonate or nets, the replacement polycarbonate windows must have a ¼" test hole drilled in a convenient location.
- b. Window nets must be attached to either the original door/window frame or, in the case of a composite door, must be secured to the rollage.
- c. For road events the windshield must be made of laminated glass or occupants must wear helmets with visors.
- d. If side windows are tinted there must be a clear area of at least 700cm squared positioned in such a way that the occupants can be seen from outside the vehicle.

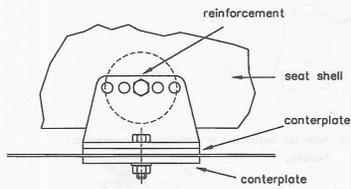
15. Fuel Tanks

- a. Original fuel tanks may be replaced by fuel tanks manufactured by a recognized manufacturer, either in the original location of the tank or in the luggage compartment.
- b. The position and the dimension of the filler hole as well as that of the cap may be changed as long as the new installation does not protrude beyond the bodywork and guarantees that no fuel shall leak into the interior compartments of the car. If the filler hole is situated inside the car, it must be separated from the cockpit by a liquid-tight protection.
- d. Vent hoses must have check valves or be plumbed such that fuel cannot escape if the car is inverted.

16. Exhausts & Sound Control

- a. Maximum sound levels for vehicles competing in the following types of events (For events not listed the most stringent level will be used):
 1. Stage Rallies, Speed Events, Road Rallies, Dexterity Challenge, 4x4 off-road trials and Auto Cross 108dB at 4,500 RPM
 2. Rally Cross and Rally Sprint 108dB at 5,000rpm.
 3. Circuit Racing 120dB at 5,000rpm
 4. Kart Racing 110dB
- b. Sound testing will be carried out before a vehicle is allowed to take part in any competition.
- c. Measurements for category 1. will be made at 0.5m from the end of the exhaust pipe with the microphone at an angle of 45° with the exhaust outlet and at a height of 0.5m to 1.0m above the ground with the engine running at 4,500 RPM
- d. Measurements of categories 2. and 3. will be made at 0.5m from the end of the exhaust pipe with the microphone at an angle of 45° with the exhaust outlet and at a height of 0.5m to 1.0m above the ground. The testing location will be selected to ensure there are no reflective objects such as walls, buildings, etc. within a 20m radius.
- e. Where more than one exhaust outlet is fitted, the test will be repeated for each exhaust and the highest reading will be used.
- f. The testing location will be selected to ensure there are no reflective objects such as walls, buildings, etc. within a 20m radius. Background sound level should be at least 10.0dB below the measured level.
- g. Measurements of category 4. will be made with the microphone suspended over the track set at a height of 1.8m above the normal driving line at a point where the karts are at maximum power. The testing location will be selected to ensure there are no reflective objects such as walls, buildings, etc. within a 20m radius.
- h. All participants in motor sport (competitors, officials, marshals, etc.) should be aware of and protect themselves from the harmful effects of excessive noise.
- i. Exhaust pipes must extend to the vehicle perimeter (in plan).

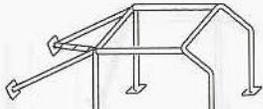
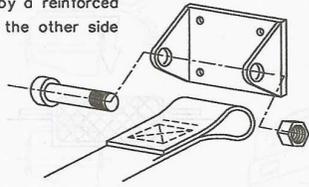
SAFETY REGULATIONS



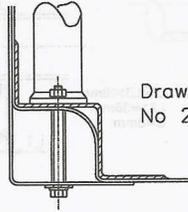
Drawing No 253-52

strengthened by a reinforced plate on the other side

Drawing No 253-44

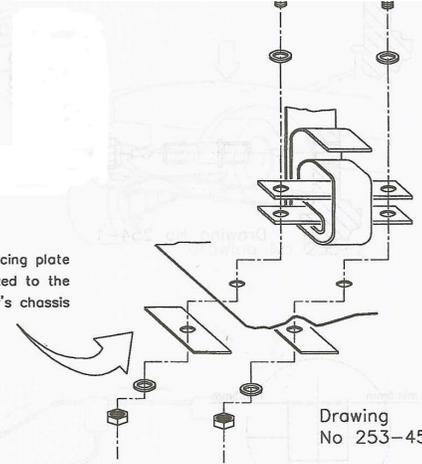


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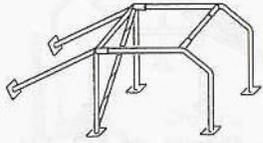


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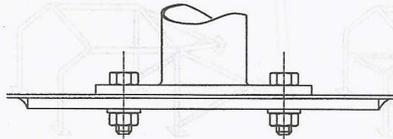
reinforcing plate fixed to the car's chassis



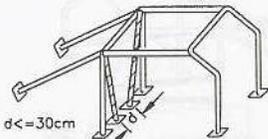
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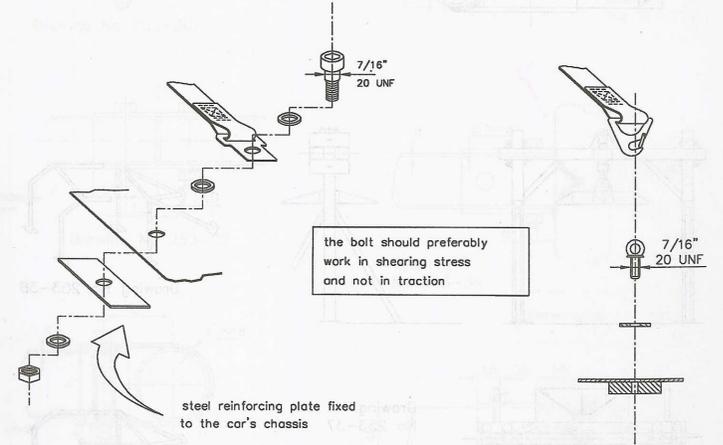
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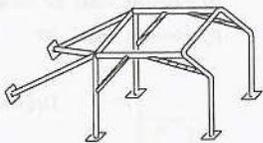
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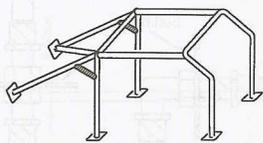
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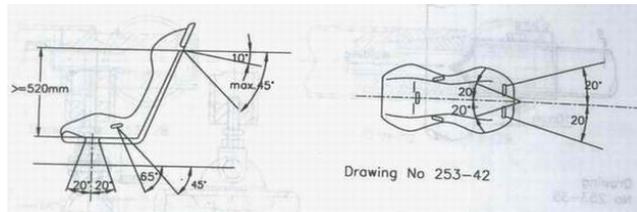
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Drawing No 253-10



Drawing No 253-16



Drawing No 253-42