

ATVC VIRTUAL GUIDELINE

Roll Cage Design

Roll cage must be constructed with at least one (1) front hoop (top of cage to floor), one (1) rear hoop (top of cage to floor), or two (2) side lateral hoops, two (2) interconnecting top bars, two (2) rear down braces and one (1) diagonal brace and necessary gussets.

If the front and/or rear hoop terminate at the elbow, the lower A-pillar and/or B-pillar must be made of the same tubing size as the roll cage. Upper main, front, rear, and lateral roll bar hoops must be made in one piece without joints. Centerlines of all required tubes must converge at intersections.

Vehicle must have sidebars, at least one on each side that will protect the occupant from side impact.

Side bars must be parallel to the ground and be located vertically in relation to the occupants to provide maximum protection without causing difficulty in entering or exiting the vehicle.

The sidebars must be constructed of tubing of the same material and dimensions as the roll cage. Additional side tubes may be required to limit cockpit intrusion, additional tubes must be of the same size tubing as the roll cage. Tubes must be placed in such a manner as to limit openings adjacent to the occupants.

All roll cage bars must be at least 3" in any direction from the driver's helmet in his/ her normal driving position.

Gussets must be installed at all main intersections on the main cage including diagonal and rear down braces, and where single weld fractures can affect driver's safety.

Gussets may be constructed of .125" X 3" X 3" flat plate, split, formed and welded corner tubing, or tubing gussets the same thickness as the main cage material.

Rear down braces and diagonal braces must angle no less than 30 degrees from vertical.

Head/neck restraints designed to prevent whiplash are required on all vehicles. These restraints must be a headrest of approximately 36 square inches, with a resilient padding at least 2" thick. Any portion of the roll bar or bracing which might come in contact with the helmet must be padded.

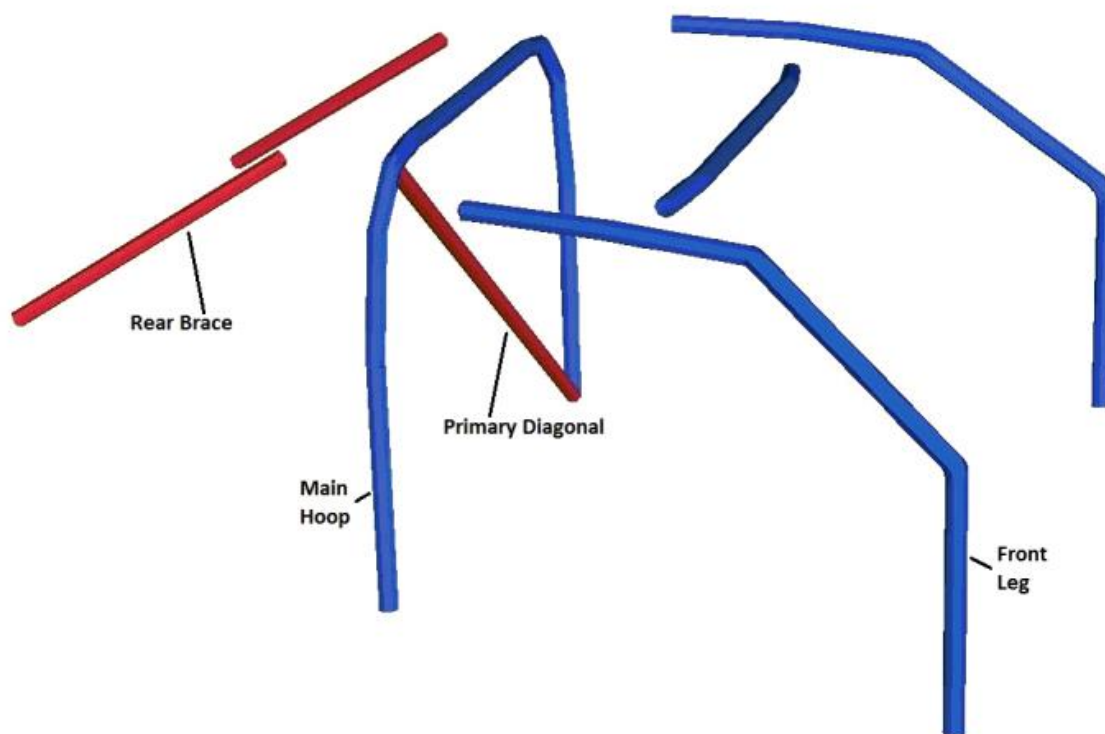
Definitions

Roll Cage

A Safety Cage is a structure manufactured with the intent of generally lessening the risk of injury to the automobile's occupants when certain, foreseeable incidents occur. It comprises a mechanical structure of circular section tubing, mountings and joints designed to reduce the deformation of the production body shell in the event of an incident. It may also include the provision of attachment points for safety harnesses, seats and other required safety equipment. The term Safety Cage shall also include Roll Over Protection Structures ("ROPS").

Main Hoop

The main hoop is a vertical or near vertical member formed from a single tube perpendicular to the automobile centreline extending across the width of the automobile immediately behind the driver seat occupant. It will generally extend vertically from the floor of the automobile to a level above the top of the occupant's head. (Drawing SC-1)



Front Legs

Each front leg is a member formed from a single tube that generally extends from the main hoop at top height forward.

Rear Braces

Each rear brace is a member formed from a straight single tube that generally extends from the main hoop at top height, close to each side, to a substantial part of the automobile at the rear.

Primary Diagonal

The primary diagonal is a member formed from a straight one-piece tube to provide lateral triangulation of the main hoop.

Characteristics

Main Hoop

The main hoop shall be formed from a single piece tube. Other members may be attached to the main hoop by welding. The hoop shall have no more than five bends in total.

The main hoop shall be vertical when viewed from the side, with a 20 degree tolerance. It shall not overhang but must be within 150mm of the occupants' helmets.

Primary Diagonal

The primary diagonal shall be a member composed of a single tube that extends from the lower Driver side to the top of the structure behind the driver's head. It may be either in the plane of the main hoop, or under certain circumstances in the plane of the rear braces.

Rear Braces

Not fewer than two rear braces must attach to the main hoop at, as close as possible to the outer bends of the main hoop. Each must be straight and make an angle of at least 30 degrees to the vertical, when viewed from the side.

Front Leg

Each Front leg must be a single tube, and follow the interior of the cockpit closely. It must be attached to the main hoop as close as possible to the top, preferably near the junction of the rear braces. Each front leg must have the minimum number of bends required.

DRIVER'S COMPARTMENT

Driver is to enter and exit the driving compartment unassisted with ease, with the vehicle in any position.

The driving compartment must be separated by firewalls or bulkheads from any acids or fuels.

The roof shall also be covered with sheet metal or sheet aluminum (minimum thickness .080 inch) covering all areas.

No items inside the driving compartment should be a danger to the occupants, and is subject to Technical Director's approval.

FIREWALLS

All vehicles must utilize an all-metal firewall to separate the driver's compartment from any dangers.

Firewalls will keep occupants protected from, fire from the engine and any fuel supplies, any fluids hot or cold.

A minimum firewall must extend from the driver's shoulder height to the vehicle floor and body. Maximum gap around any item is 1/16(.062) inch. If the rear mounted fuel cell is higher than shoulder height, the firewall must be extended at least two inches above the fuel cell.

WEIGHT

Vehicle race weight shall be considered dry weight. (Dry weight is with all fuel tanks drained.) Tools, spare tires, and parts removed, but otherwise the vehicle must be race ready.

FLOORBOARDS

Floorboards or belly pans are required on all vehicles and must be held on by a minimum of six (6) .25" bolts per side if the floor is not an integral part of the body or chassis. Floorboards must cover the entire area from the front of the pedal assembly to the back of the seat(s) and from outside edge to outside edge on the sides. Floorboards will protect occupants from dust and debris.

BUMPERS and HAZARDOUS PROTRUSIONS

No hazardous front or rear bumpers, nerf bars, frame ends or other protruding objects from the vehicles are allowed.

All ends must be rounded and capped off.

SKID PLATES

Skid plates designed to protect the front suspension, steering, and brake components are required on all vehicles. Skid plates must be designed of metal and be securely mounted.

STORAGE

All spare parts and extra equipment carried on or in a vehicle must be securely fastened to prevent their movement.

HOSES

All hoses including metal lines and fittings must be securely clamped and/or safety wired in place.

THROTTLES

Vehicle must have a throttle incorporating two (2) positive action return springs. A positive stop and override prevention system must be used to keep linkage from passing over center and sticking in an open position.

FASTENERS

All nuts, bolts, and component parts on each vehicle's suspension system, chassis and running gear must be secured with Grade 8 or better nuts and bolts and secured with either lock nut, cotter keys or safety wire and have at least one full thread showing through the nut.

SHOCK ABSORBERS and BUMP STOPS

At least one shock absorber per wheel, in working condition, must be used on all 4wheel vehicles.

STEERING

Steering wheel play must be kept to a minimum. Drag link and tie-rod ends must be secured and keyed.

BRAKES

Brakes must be in a safe working condition and able to apply adequate braking force to "lock-up" all four wheels.

Battery and alternator

Batteries shall be positioned to allow maintenance without removing the battery from its securing device. The construction of the battery and all connections to it shall be such as to prevent any possibility of an inadvertent short circuit.

Electrical load if any added while converting or body building of special purpose vehicle should not exceed the rated load available from alternator/battery such electrical tapping shall be used for light loads like illuminations and gadget. In case if higher load is necessary to drive the equipment, same shall be arranged separately.

Electrical wiring

All electrical wiring in special purpose vehicle shall be properly installed, taped, clipped or contained in a loom along its length.

Electrical wiring shall conform to IS: 2465-1984 as amended from time to time. 2.2.1.3 Electrical installations shall comply with those clauses of IEC 60364-7-708 which are applicable to any type of Special Purpose Vehicle.

Note: The reference to IS 2465:1984/IEC 60364-7-708 does not apply to the original electrical equipment/Wiring Harness, which is already covered by the type approval of the base vehicle.

Transmission

Any Engine of capacity equal to or lesser than 400 cc can be used for the design imitation. The Engine and its assembly shall not be modified or replaced with any non OEM material or component. Power and Torque of the Engine shall remain as specified by the OEM.



INFI LEAGUE MOTORSPORTS

References

AASA

Safety

Roll Over Crush Protection

The rule doubles the amount of force the vehicle's roof structure must withstand in the specified test, from 1.5 times the vehicle's unloaded weight to 3.0 times the vehicle's unloaded weight.