

World Racing League Rules and Procedures – EXCERPT

APPENDIX A - Roll Cage Design and Construction Specifications

This section provides the generally accepted minimum roll cage design and construction requirements. Existing roll cages used in NASA, SCCA, and other national road racing sanctions, if properly built and inspected, should meet or exceed the standard below. If you are contemplating building a new cage yourself and do not have a proper tubing bender, welder and notch saw, don't know how to weld or don't understand why cardboard comes into play in the process, stop here. **This is a safety issues and WE WILL fail homemade cages at the event if they are not done right.** Take this Appendix and the car to a reputable fabricator and feel secure in knowing you just made a smart call.

General Criteria

- 1 Professionally designed and built roll cages are highly recommended. This is not something the untrained or unskilled should attempt to do themselves.
- 2 Professionally manufactured bolt-in cages are allowed provided they are installed using the manufacturer-provided or specified tools and hardware and meet the design criteria in Section 2
- 3 Welds must be professional quality, 360 degrees around every tube joint, with full penetration
- 4 Minimum tubing size will be determined by the weight of the car. All tubing will be seamless mild steel or DOM, ERW is not acceptable unless a waiver is granted for an existing cage
 - a. Under 2500 lbs - 1.50" x 0.095"
 - b. 2501 and over - 1.50" x 0.120" or 1.75" x 0.095"
- 5 Tubing will be Rotary Drawn or Mandrel Bent and properly notched with appropriate tools. Bends must have a radius no less than 3 times the outside diameter of the tubing and will not show any signs of crimping, stretching or other potential failure.
- 6 Any cut made in a firewall to accommodate tubing must be re-sealed once the tubing is installed
- 7 The use of gussets to strengthen connecting points is open
- 8 Any portion of the finished roll cage that may be contacted by the driver's helmet, body or limbs must be padded with roll bar padding

Roll Cage Design

- 1 Main Hoop must be a single, continuous length of tubing with no more than 4 bends, and should follow the b-pillars and roofline as closely as possible with a rake of no more than 15 degrees off vertical. The Main Hoop will be tall enough so that any driver's helmet does not extend above a line connecting the centerlines of the Front Hoop and Main Hoop
 - a. A diagonal brace will be added in the same plane as the Main Hoop, with one end connecting at lower right of the Main Hoop at the mounting plate or as closely as possible, and the other end connecting to the top left (horizontal) of the Main Hoop within 12" of the bend nearest the driver's head
 - b. The Main Hoop will be braced with two uncut, continuous tubes extending rearward from the top corners (bends) of the Main Hoop, or within 6" thereof, running straight to the floor, cross member or strut/shock towers. Rear bracing will not have any bends and should be at a 30-60 degree angle to the plane of the Main Hoop
- 2 Forward section of the main cage may be one of three configurations:
 - a. Side Hoops (aka "Forward Hoops"): Tubes extending forward from the top corners (bends) of the Main Hoop and down to the front floor, following the roof line and a-pillars as closely as possible, each with no more than 2 bends, and both connected by a tube running as close to the top of the windshield as possible. (SCCA Production cages that do not follow the original roof line may qualify, petition the officials before the race to gain approval), or;
 - b. Halo: A single tube bent into a "halo" that extends forward from either corner of the Main Hoop in a horizontal plane to the top of the windshield and follows the roof line as closely as possible. The front of the halo will be supported from the floor/sill by a continuous section of tubing that follows the a-pillar as closely as possible from each front corner of the halo to the floor, or;

World Racing League Rules and Procedures – EXCERPT

- c. Front Hoop: A single, continuous length of tubing with no more than 4 bends, which should follow the A-pillars and roofline along the top of the windshield as closely as possible, mounted on either side to a floor plate or sill. The front Hoop and Main Hoop will be connected together on either side by tubing running from the top corners of each hoop and following the roof line as closely as possible
- 3 Door Bars: A minimum of two door bars are required on the driver's side, x-bars are acceptable. Bars must be placed to protect the driver in the event of a side impact. Door bars may be bent to push into the door cavity, but S-bends are prohibited on new cage builds (2014 or later). A minimum of one door bar is required on the passenger side.
- 4 Dash bar: A dash bar running horizontally between the front hoop a-pillar bars, and at the height of the original dash is highly recommended
- 5 Harness Bar: A horizontal bar between the left down tube of the Main Hoop and the Diagonal Bar may be installed for shoulder harness strap mounting, at a height recommended by the harness manufacturer. Harness bar may have bends to accommodate aft seat travel.
- 6 Seat Mount: A seat mount tube or tubes mounting the seat to the roll cage is highly encouraged, and does not count toward cage attachment points

Mounting points

- 1 Cage must be mounted to the floor, towers and/or sill plates at a minimum of 6 points (2 each at the Main Hoop, Rear Braces and Front Hoop). 2 additional mounting points may be used at the Front Hoop to the firewall or front wheel wells
- 2 The use of Body Tabs is open, but tubes added for no other reason than to increase chassis rigidity may be disallowed or penalized at the officials' discretion
- 3 Mounting plates must be at least 16 square inches at 0.080" thick and must be welded completely around the perimeter. If bolted in, plate must be 3/16" thick minimum, bolted at a minimum of three points with Grade 5 hardware

Final Authority on whether your cage passes safety inspection or not lies solely and completely with the race officials. It doesn't matter who you paid how much to build the cage, or what other series you've raced the car in, if the cage is unsafe, if there are missing bars, missing/inconsistent welds, or any other issue that presents a safety hazard, the car cannot be allowed to race.



General Example of a WRL-legal cage (Halo style)

Alternate designs meeting the rules above are allowed