

# 3 VEHICLE CONSTRUCTION RULES

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## 3.1 Saloon Construction

### 3.1.1 Definition

A Saloon is defined as a 4, 6 or 8 cylinder car, (includes 4 wheel drive class in sprint series). A two rotary engine will be classed as a 4 cylinder.

### 3.1.2 Motor Modification

Any motor modification permitted.

### 3.1.3 Body

All body shells must resemble factory produced vehicles; they may be constructed from original panels, fibreglass or handmade panel steel. They may be on factory made floor plans. Chassis may follow builder's own design using suitable materials. Alterations allowed to motor, gearbox, differential and suspension mounts.

### 3.1.4 Firewall

Any car with cut or altered firewall, including space frame, must have an approved type scatter blanket or scatter shield ¼" steel plate (min) and must cover the top 180-degree of the bell housing, extending a minimum of 200mm from rear of engine block.

### 3.1.5 Roll Cage

Full roll cages are compulsory, minimum specifications for roll cages being:

3mm steel wall piping with a minimum of 38mm outside diameter for main hoop and a minimum of 32mm outside diameter, 3mm steel wall piping for lateral supports (galvanised pipe not recommended).

There must be 50mm clearance between top and side of driver's helmet and roll cage or roof.

All fixing plates are to be a minimum of 5mm thick and not less than 100mmx100mm, or to the scrutineers discretion. The point at which roll cages are mounted must be of sound condition and to the scrutineers satisfaction. All cages must have support bars across top of front windscreen and also between main hoop of cage 2/3rds from base of seat, and no more than 75mm clearance between rear of seat and bar (in case of seat failure). Other recognised cages accepted at scrutineers discretion. Scrutineers decision is final.

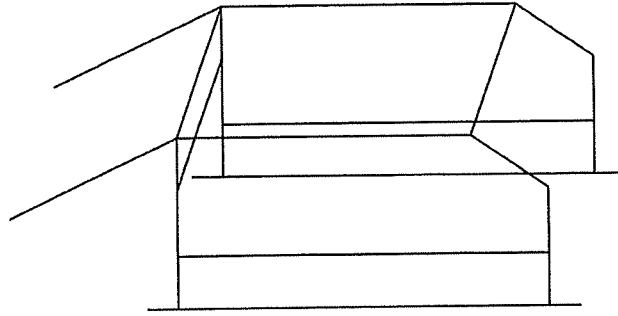
All bends formed in roll cage pipe to be smooth uniform and to be not less than 0.9 of the original pipe OD size.

All vehicles to run adequate roll cage padding, to protect occupant's heads and body parts e.g. elbows.

For **Space frame saloons** only (To take effect from the start of the 2008/2009 track season.)

A 300mm square by 3mm steel plate above occupant's head to be welded continuously on all four sides to adequately protect occupant's head.

The supporting pipe work to be minimum 32mm OD x 3mm wall.



(Diagram 1)

### **3.1.6 Intrusion Bars**

Hip intrusion bars must be fitted at a position not lower than level with drivers legs (knees to hip). Hip plates if fitted to be a minimum of 3mm (1/8") thickness. 300mm (12"), high and 600mm (24") long welded on three sides, OR Cross bars in the door area may be mounted between front hoop and centre hoop.

First bar to be mounted at hip height or 350mm from floor level (which ever is the more suitable) on centre hoop and sloped down to join front hoop at floor level. Second bar to start at the same height as first, welded to front hoop and dipped down to meet centre hoop at floor level. Pipe to be 2mm x 34mm minimum. Triangles on 2mm sheet and centre square to help join plates recommended.

### **3.1.7 Cooling System**

The driver must be completely isolated from the motor cooling system and driveline by adequate panel work or suitable material.

### **3.1.8 Fuel Tanks**

Fuel tanks may be moved, but must be isolated from the driver by a leak proof metal cover or fire wall e.g. Steel or aluminium, and secured.

### **3.1.9 Fuel Overflow Pipe**

Fuel overflow pipe must not drain in to the driver's compartment, and extend below bottom of fuel tank, or goes through floor if applicable.

### **3.1.10 Petrol Caps**

Petrol caps must be screw on or locking and firmly secured. No rubber fuel caps permitted. No plastic fuel lines or plastic or glass fuel filters.

### **3.1.11 Methanol**

Cars running methanol to display the letter "M" in fluorescent paint on their cars. The driver must also notify the Head Scrutineer and the Clerk of the Course that they are running methanol.

All drivers must wear full length, long sleeve Proban Nomex blend (or material possessing the same protection rating) protective clothing with close fitting fronts, cuffs and ankles. The wearing of flame retardant gloves while driving in competition and practices is compulsory.

The use of flame resistant Balaclavas optional.

### **3.1.12 Wheel Base**

Original wheel base to be maintained plus or minus 5%.

### **3.1.13 Seats**

All cars must have high back seats or headrests.

### **3.1.14 Hubcaps**

All hubcaps must be removed.

### **3.1.15 Bumpers**

Front and rear bumpers, size 32mm OD pipe maximum. A single pipe may be fitted so that the ends wrap around the front and rear guards, no more than the original bumpers. No pipe work may protrude further than 75mm from the cars panels to the outside of the pipe. All ends to be capped. Original bumpers may be put over these bars. A hoop may be fitted on the top of the bar, but must not extend along more than the inside of the headlight and be no more than 200mm in height to the outside of the pipe. Rear hoop not to extend along more than the outside of the tail-lights, and be no more than 200mm in height. The bumper rule applies to all saloon cars. Bumpers must all be capped.

### **3.1.16 LPG OR CNG**

No vehicles to run under the power of LPG or CNG.

### **3.1.17 Kill Switch and Battery Isolation Switch**

All classes must be fitted with a kill switch which must stop the engine and turn off all other electrical equipment.

On and Off positions must be clearly marked.

The Alternator lead if live must be protected by a maximum 100amp Fuse, fitted near the Battery end of cable, as close as possible.

The Kill Switch must be fitted within reach of the driver when belted in.

### **3.1.18 Lifting Hooks**

Race cars have to have lifting hooks fitted front and rear of chassis for tow vehicle purposes.

### **3.1.19 Fire Extinguishers**

All cars or race vehicles to carry fire extinguishers as per club specifications.

### **3.1.20 External Steelwork**

No saloon car will be permitted to have any external steelwork including tow bars with the exception to front and rear bumpers.

### **3.1.21 Tyres**

No excessive knobbly tyres permitted (e.g. desert dogs, town and country, mud grips etc) Rally tyres and cross grooves are acceptable along with racing tyres. Dual wheels not permitted.

### **3.1.22 Battery**

All batteries must be securely mounted. Batteries may be mounted in the driver's compartment so long as anchorage, cover and positioning are to the scrutineers satisfaction.

### **3.1.23 Exits**

If any car has less than two working doors, there must be exits available not less than 0.360sq metres in area.

### **3.1.24 Windscreen**

If front windscreen is removed, to protect occupants from flying objects, a steel mesh must be secured to the full width of removed windscreen.

Mesh to be 150mm x 150mm (6" x 6") maximum hole size. Other Clubs use 75mmx 75mm steel mesh with a minimum wire size of 2.6mm

### **3.1.25 Starter Motor**

All vehicles should have a starter motor that works; jump-starting is time consuming and will be discouraged.

### **3.1.26 Carburettor/Throttle Body**

Two return springs to be fitted in a manner so as to close throttle shaft.

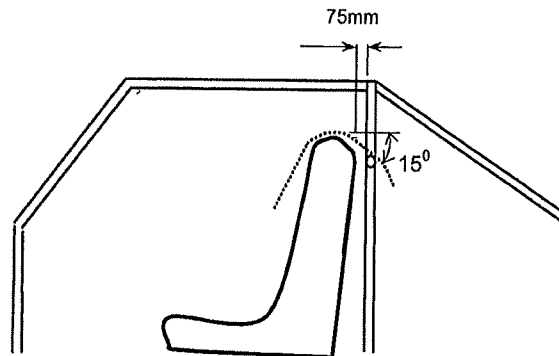
### **3.1.27 Exhaust/Mufflers**

All exhaust systems must extend to the rear of the driver's seat, and face away from the driver's door. To have maximum height to top of pipe outlet to be 300mm above ground level.

All participating cars are to run mufflers, Max 95 db.

### **3.1.28 Seats and Restraints**

- a) All seats must be securely mounted
- b) Recliner style seats shall have a restraining bar, no more than 75mm clearance between rear of seat and bar, to prevent rearward collapse of seat back.
- c) An approved harness is a requirement.
- d) Safety belts shall be fastened to seat belt frames or supports
- e) Mounting points to be secure to vehicle frame chassis.
- f) All belts to be approved manufacture
- g) Inertia reel belts not permitted
- h) Shoulder strap mounting points for conventional seats are to be positioned so that straps are not more than 15 degree downward angle from a horizontal plane extending from the occupants shoulder to the bar.



- i) All seats are to be fitted with headrests to reduce the chance of neck injury in front and rear collisions.
- j) All seat belts to be manufactured to NZ Safety or approved Overseas Safety Standards. No seat belts to be modified or resewn.

### **3.1.29 Brakes**

All vehicles are to be equipped with four braking wheels, to enable the vehicle to stop effectively. At the discretion of the scrutineer.

### **3.1.30 Differential**

The differential may be set up in any way desired, but the driveshaft must have a safety hoop placed immediately behind the gearbox yoke, and behind hanger bearing on two piece drive shafts, to prevent the driveshaft digging in to the track should a universal break occur.

### **3.1.31 Numbers**

All racing cars must have their official racing number marked clearly on both sides of the car and on the roof with the bottom of the number facing left side of car, and no less than 400mm in length. It is the competitor's responsibility to ensure that the competition numbers remain legible. While racing competition numbers must be clearly visible to officials and lap scorers; failure to comply may result in points not being awarded.