

## Technical Specification

### **1 ENGINE**

1.1 Any 4 cylinder 4 stroke production car engine may be used.

1.2 Maximum capacity permitted is 1427cc including repair sizes.

1.3 Two camshafts may be used. Camshafts are free, valve springs are free.

1.4 Multi-valve heads may be used, again this must be derived from a production car.

No BDA heads permitted. (When using multi-valve heads, a specification sheet must be produced at any time, during a race meeting upon request, describing in detail the credentials of the type of head used.)

1.5 Strictly no porting or polishing is allowed on multi-valve heads, although the inlet manifold may be matched to the head.

1.6 Valves must remain standard on multi-valve heads for the particular model used. Replacement valves if used, must be of the original size on 16 valve heads. The use of rim flow valves is not permitted.

1.7 When using multi-valve heads, there must be 32mm (1 1/4") restrictors between the carburettors and the head. This must be available for checking at any time.

1.8 Any other method of normal aspiration is permitted.

1.9 Fuel injection is NOT permitted.

1.10 Only roadside pump petrol can be used, with a maximum octane rating of 101. Valve lubricant is allowed.

1.11 No special mixes or methanol blends, nitrous oxide or octane boosters are permitted.

1.12 Engines must self start.

1.13 No part of the carburettor will be outside the protective nerf bar.

### **2 TRANSMISSION AND FINAL DRIVE**

2.1 Only rear wheel drive is permitted.

2.2 Differentials may be free, locked or limited slip.

2.3 Motor cycle type roller chain is NOT permitted.

2.4 Flexible band or toothed belt or Hydro chain must be fully enclosed in a substantial casing. This must be to the Technical officer / scrutineers satisfaction.

2.5 Operative clutch and reverse gear are mandatory.

2.6 Gearboxes / transaxles are free **but must be manually operated. Paddle shift or electronic mechanisms are NOT permitted.**

**2.7 All prop shafts are to have a minimum of one hoop or guard surrounding it.**

### **3 CHASSIS**

3.1 Dimensions:

Maximum overall length 3300mm (130")

Maximum overall width 1675mm (66")

Maximum wheelbase 2085mm (82")

Minimum wheelbase 1676mm (66")

3.2 A welded steel tube frame is normal but a monocoque chassis permitted.

3.3 All cars of space frame type chassis will have a minimum of two longitudinal chassis rails of minimum 25mm X 1.6mm (1" X 16g) square or round tubing (Rails to be one either side of the cockpit.)

3.4 The cockpit side rails must be a minimum of 150mm (6") above seat height (when uncompressed). No part of the drivers seat shall extend rearward further than a line level with the back edge of the rear tyre. Bodywork must be secure and completely cover the chassis forward of the roll cage and the sides from the rear arch of the roll cage forward.

3.5 Considerable triangulation is required in construction for safety and handling.

3.6 A metal firewall must be fitted between the engine and the driver, where it is impractical to fit a full fire wall , it may be advisable to fit a plumbed in fire extinguisher system.

A fuel collection tray must be fitted under the carburettors and fuel lines. It must be fitted in such a way that any leaking or excess fuel will be collected and drained away from the engine, driver and chassis. A drain tube to below chassis level is recommended.

It is recommended that a heat proof shield is also fitted between the exhaust system and the driver.

It is recommended that a substantial reinforcement is used between the driver and the flywheel clutch area of the power unit, incase of explosion.

3.7 A deformable structure in front of the drivers feet is MANDATORY. This may be A specially constructed disposable section, or an integral part designed so that it will collapse progressively, absorbing some of the impact energy, in the event of a frontal collision, before damage occurs within the drivers compartment or footwell. A substantial bulkhead must be installed between the drivers footwell and the

deformable area to protect the drivers feet.

3.8 The nose cone must be made of a deformable structure, and where tubing or box section is used it must be of a thickness less than the chassis tubing. If the nose cone is shaped to a point, the front must be no less than 150mm (6") wide in a horizontal direction and have a bend in the tubing to allow it to collapse on impact. If straight tubing is used it must be no less than the width of the chassis.

3.9 Cars built after 2014 must have a minimum height of 230mm (9") from the floor to any cross member (or any object) for a distance of a minimum of 450mm (18") from the pedals rearward. To allow easy egress without the driver bending their feet.

## **4 ROLL CAGES**

4.1 32mm x 2mm (1 1/4" x 14g) round steel tube with 510mm (20") maximum unsupported length. There must be fore and aft bracing to the rear arch of a minimum of 19mm (3/4") tube, attached at a minimum of 3/4 rear arch height (measured from the top chassis rail) and attached at the equivalent distance of 1/2 rear arch height along the top chassis rail. A diagonal cross brace, minimum 19mm (3/4") must be incorporated in the rear arch between the top of the arch and a point level with the top chassis rail.

OR 38mm x 1.6mm (1 1/2" x 16g) steel round tube with 585mm (23") maximum unsupported length. A diagonal cross brace of minimum 16mm (5/8") must be incorporated in the rear arch between the top of the arch and a point level with the top chassis rail.

4.2 A substantial "A" frame may be used instead of a diagonal cross brace. All bracing and diagonals must be symmetrical about the centre line of the car where practical.

4.3 Round steel tube only for roll cage. Fore / aft and diagonal bracing may be round or square tube.

If welded in, fore or aft brace will bar engine removal, this bracing may be bolted in using minimum 8mm (5/8") high tensile bolts and lock nuts, preferably in double shear.

4.4 All space frame type chassis are to have the roll cage attached directly to the chassis rails of a minimum 25mm x 1.6mm (1" x 16g).

4.5 No part of the drivers body whilst in the normal driving position shall be outside the side "plain" of the roll cage.

4.6 A side deflector bar will be fitted. This must be made of 25mm x 1.6mm (1" x 16g) tubing and must be a minimum height of 535mm (21") from the ground whilst on a level surface. It must be fitted from the back to the front of the roll cage on the left hand side of the car.

4.7 There must be minimum distance of 100mm (4") between the top of the drivers helmet and the top plane of the roll cage.

4.8 The seat must be securely fitted to the chassis using at least 4 high tensile bolts, with a minimum size of M8.

The middle of the drivers seat must be within 250mm (10") and must be parallel to the centre line of the car, within 10 degrees. (Not the centre line of the chassis.)

Looking from the rear the seat must be mounted vertically in relation to the chassis.

4.9 (GP Midget cars built prior to 1996)

These cars may alter existing cages as follows to comply with the above regulations. To comply with 32mm x 2mm (1 1/4" x 14g) option but to have bracing of a minimum of 25mm x 1.5mm (1" x 16g) tube to meet with the Technical officers guidance and approval.

Fore and aft bracing may be crossed over, in a symmetrical pattern, if cross bracing or "A" frame bracing in the rear arch is impractical.

Any existing car that needs extensive repairs to the roll cage or which has extensive modifications to the roll cage (not including modification in accordance with the above specifications) must comply with the roll cage specification in their entirety.

## **5 SUSPENSION**

5.1 Some form of suspension is compulsory, allowing a minimum travel (compression and rebound) of 75mm (3") at each wheel.

5.2 Dampers to be single adjustable units only.

5.3 Solid or compressed rubber bush type suspension is NOT permitted.

5.4 No four wheel steer systems allowed.

5.5 All axles which are not inside the main chassis to be tethered to the chassis, or be within an attached frame work of at least chassis dimensions.

5.6 Tethers will be mandatory on all independently suspended wheels. The tether shall wrap around chassis frame and bolt to the hub. The tether to be a minimum of 3mm steel cable.

## **6 WHEELS AND TYRES**

6.1 Racing and competition tyres are not restricted, with the exception of studded tyres or any form of detachable grip enhancer (chains) are NOT permitted.

6.2 The maximum width of the tyre to be 250mm (10") as stated on the tyre wall by the manufacturer.

6.3 Tyre stagger is permitted side to side

6.4 Types of wheels are free but should be strong enough for oval racing. Banded type steel wheels are permitted. All types of wheels should be regularly checked for

cracking, paying special attention the hub fitting.

6.5 Wheel balance weights should be of stick on type mounted within the rim. Edge fitting clip on weights are NOT permitted.

6.6 Centre lock wheels MUST have locking pins, safety clips fitted.

6.7 Wet weather tyres must be used during a wet race. The most senior committee member present on the day will deem whether an event is declared a wet race, or on the advice from the promotion on the day.

## **7 PROTECTIVE (NERF) BARS**

7.1 Some form of side protection bars protecting the rear wheels is MANDATORY.

7.2 Side protection nerf bars must be lightweight construction, be no wider than the outside edge of the tyres, while in a straight ahead position and be at a height of approximately the wheel centre.

7.3 There should be no sharp edges on bar work and all tube ends are to be filled in /rounded off.

## **8 FUEL TANKS AND SYSTEMS**

8.1 A metal or approved type bag tank of not more than 18 litres (4 gallons) may be fitted. Where a metal tank is fitted it must be properly secured within the main chassis frame the car or in a sub-frame of at least equal strength to the main chassis of the car with a suitable clearance acceptable to the scrutineer, with a recommended clearance of 75mm (3") all around the tank itself.

8.2 A positive action fuel tap must be fitted within easy reach of the driver, whilst in the driving position is MANDATORY. It must be clearly marked and the method of operation clearly indicated.

8.3 Fuel hoses or pipes may be metal or rubber and must be fitted with clips at all joints, even if the pipe appears tight.

8.4 All fuel lines must be adequately protected from any rotating or moving parts when passing through the cockpit area.

8.5 All fuel lines must be maintained in good condition and replaced at the first sign of fraying (where applicable) or deterioration.

8.6 Fuel tanks must be fitted with a working non return valve. Fitted to either the breather pipe or screw on cap.

## **9 ELECTRICS**

9.1 All batteries must be secured to the chassis within the main frame, or in a substantial subframe or cage.

9.2 All batteries must be secured to the chassis within the main frame, or in a substantial subframe or cage. The top must be covered with a rubber or similar anti corrosive material. A gel type battery is recommended.

9.3 A master switch clearly marked and easily operated by the driver whilst in the normal driving position, must be fitted. It should be connected into the earth side of the electrical system.

9.4 A wet weather light must be fitted and working for when conditions demand. A single rear light with a diameter of not less than 50mm (2") and a minimum of 21 watt bulb must be fitted. Or a suitable LED may be used.

9.5 An "AMB" trans X 260 (or similar) transponder must be fitted. It must be a minimum of 300mm (12") back from the middle of the front suspension arm.

9.6 All drivers must use a receiver and be able to hear the radio transmissions.

9.7 A brake light must be fitted to all cars, separate to the rain light, and be activated when the brakes are applied.

## **10 BRAKING SYSTEM**

10.1 A brake caliper must be fitted and operate on each of the four wheels of the car.

10.2 Dual circuit hydraulic systems are MANDATORY and must be capable of locking up all four wheels.

10.3 No device of any kind should be fitted to the braking system to enable a brake caliper to be completely disabled.

## **11 SEAT BELTS**

11.1 A minimum of 75mm (3") wide safety belts with 50mm (2") wide lap straps and 40mm (1 3/4") sub-strap. This must be a full 5 point buckle release harness (including NASCAR type) and must be fitted and bolted to the floor and / or roll cage. Shoulder belts with a sternum protection latch are highly recommended.

11.2 All seat belt straps must be protected from fraying through rubbing on sharp edges and maintained in a clean and secure condition at all times.

11.3 The shoulder straps must have an effective mounting height of between 25mm (1") and 150mm (6") below shoulder height of the driver.

11.4 The ORCi recommend that an extra bar is fitted to the roll cage behind the drivers seat approx. 100mm (4") below shoulder height of the driver. Your seat belts may be fitted to this bar. The bar is to be of roll cage specification.

## **12 GENERAL SAFETY**

12.1 A 90mm (3 1/2") hole is to be located in any bodywork enclosing the engine and / or fuel tank, pumps and carbs to provide fire extinguisher access to each such point.

12.2 Fire extinguishers are advisory in the race car. If fitted they must be in a tube with a spring clip top and bolted into the car.

12.3 The tow vehicle / transporter MUST have a suitable extinguisher, i.e. powder should be 2.5kg and foam should be 1.5kg minimum.

12.4 When refuelling a car there must be a second person in attendance with a fire extinguisher available which is easily accessible for use.

12.5 A catch tank of minimum capacity of 1 litre must be fitted to all fuel and oil breather vents and overflow pipes. No "drinks cans" will be allowed for this purpose.

12.6 Any car found leaking fluids onto a race circuit will be excluded from racing.

12.7 All cars must be fitted with 2 Land Rover "type 2" (F2 stock car) rear view mirrors. Any glass must be backed with adhesive tape to secure against fragmentation.

12.8 Every effort should be made to protect the driver from burst and failed connections in oil or water hoses by routing them clear of the cockpit or by providing adequate shielding within the cockpit.

12.9 A substantial head restraint is to be incorporated into the chassis or seat back, it is recommended that a crash pad a minimum of 100mm (4") square be fitted to a substantial support directly behind the drivers crash helmet when strapped in.

12.10 No cockpit devices to be used while driving with the exception of a brake balance adjuster.

## **13 DRIVERS PERSONAL SAFETY**

13.1 All helmets, overalls, gloves and safety wear must be to the ORCi specification.

13.2 It is strongly recommended that seats have a side headrest fitted or that driver use a neck brace

## **14 SILENCERS**

14.1 Exhaust note level must not exceed 96 decibels. However some circuits require

cars to have a maximum exhaust noise level of 90-92 decibels, any such tracks rules must be complies with. If any cars exceed a static check they will be excluded from racing.

## **15 FIN PLATES AND RACE NUMBERS**

15.1 Race numbers are to be applied to “Karting” fin plates and must be fitted to both sides of the car, above the waist line and must be clearly visible.

N.B. *These are available from the club at cost price.*

15.2 Race numbers should be black on a white, yellow, silver or gold fin plate and white on a blue or red fin plate.

**15.3 Cars not displaying the correct grade colour fin plate must start from the rear of the grid.**

## **16 WEIGHTS**

16.1 A minimum weight limit of 375kgs for the whole car at any time.

A maximum weight limit of 530kgs for the whole car at any time.

## **17 AERFOILS**

17.1 All main aerofoils must be of a single deck with one side plate on each side.

The deck must be no larger 1.50 sqm, the side plates no larger than 1250mm x 610mm. Multiple wings are allowed but the total surface deck area must not exceed 2 sqm. The side plates total surface area must not exceed 1.8 sqm.

**17.2 Any Aerodynamics devices must be solid mounted to the chassis. (to be implemented as of the 2020 seson).**