

## **SR1** Last updated 22-02-2000 V1

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### **SR2 REGULATIONS**

**ALL REGULATION ARE THE SAME AS SR1 - EXCEPT FOR THESE PO**

**The organiser of the SportsRacing World Cup is International Racing Series**

The following Eligibility, Technical and Sporting Regulations and Commercial Conditions are issued by International Racing Series Ltd herinafter referred to as 'Organisers'

## **Technical Regulations**

### **ARTICLE 1 DEFINITIONS**

1.1 **Sports Racing Car**

TC

Two-seater open racing car, built for the sole purpose of taking part in races on closed circuits.  
The two seats must be situated one on each side of the longitudinal centre line of the car, and must be crossed by the same transversal plane.

- 1.2 **Automobile**  
A land vehicle running on at least four non-aligned complete wheels, of which at least two are used for steering and at least two for propulsion.
- 1.3 **Land vehicle**  
A locomotive device, propelled by its own means, moving by constantly taking real support on the earth's surface, and of which propulsion and steering are under the control of a driver aboard the vehicle.
- 1.4 **Automobile make**  
An automobile make is a complete car.  
When the manufacturer of the car fits an engine not manufactured by himself, the car shall be considered as a hybrid and the name of the engine manufacturer shall be associated with the name of the car manufacturer.  
The name of the car manufacturer shall always precede that of the engine manufacturer.  
Any Trophy, Cup or Champion Title won by a hybrid car shall be awarded to the manufacturer of the car
- 1.5 **Main structure**  
Entirely sprung part of the structure of the vehicle, to which all the suspension and/or spring loads are transmitted, extending longitudinally from the foremost suspension mounting point on the chassis to the rearmost suspension mounting point on the chassis.
- 1.6 **Bodywork**  
All entirely sprung parts of the car in contact with the external air stream, except the parts definitely associated with the mechanical functioning of the engine, transmission and running gear.  
Any air intake shall be considered to be part of the bodywork.  
Viewed from above, from the side and from the rear, the bodywork must conceal all mechanical components.  
The bodywork parts must not be mobile.
- 1.7 **Event**  
An event shall consist of official practice and the race
- 1.8 **Weight**  
Is the weight of the car without the driver at any moment during the event and without fuel
- 1.9 **Racing weight**  
Is the weight of the car in running order with the driver aboard and the fuel tank full
- 1.10 **Wheel**  
Wheel : Flange and rim.  
Complete wheel : Flange, rim and tyre.
- 1.11 **Cockpit**  
The volume of the main structure which is reserved for the occupants.  
Nothing is permitted to cover the cockpit opening as seen from above except rollover structure, shoulder and / or head restraints.
- 1.12 **Supercharging**  
Increasing the weight of the charge of the fuel-air mixture in the combustion chamber (over the weight induced by normal atmospheric pressure, ram effect and dynamic effects in the intake and/or exhaust system) by any means whatsoever.  
The injection of fuel under pressure is not considered to be supercharging.
- 1.13 **Suspension**  
The means whereby all complete wheels are suspended from the body/chassis unit by a spring medium.
- 1.14 **Active suspension**  
Any system which allows control of the flexibility and/or the damping of any part of the suspension or of the trim height when the car is moving.
- 1.15 **Mechanical components**  
All those necessary for the propulsion, suspension, steering and braking, as well as all accessories, whether moving or not, which are necessary for their normal working.
- 1.16 **Telemetry**  
The transmission of data between a moving car and anyone connected with the entry of that car in the event.
- 1.17 **Semi-automatic gearbox**  
One which, when the driver calls for a gear change, takes over the control of one or more of the engine, clutch and gear selectors momentarily to enable the gear to be engaged.
- 1.18 **Brake callipers**  
All parts of the braking system outside the survival cell, other than brake discs, brake pads, calliper pistons, brake hoses, master cylinder and fittings, which are stressed when subjected to the braking pressure.
- 1.19 **Location**  
A site defined relative to the centre line of the car, axles centre (middle of the wheelbase on the centre line), cockpit, engine compartment.

1.20 Location within the engine compartment is a site defined relative to the crank case and cylinder head(s).  
**Position**

The site defined by dimensions from the original vehicle data, e.g. axle centres and centre line of the car.

1.21 **Orientation**

Is the relationship of the component to the longitudinal and transversal axes of the vehicle.

If the component is turned 180°, this will be regarded as a change in orientation

## ARTICLE 2 REGULATIONS

TC

2.1 **Role of the SportsRacing World Cup Organisers**

The following technical regulations for SportsRacing Cars are issued by the SportsRacing World Cup Organisers

2.2 **Permitted modifications**

All modifications not allowed by these regulations are expressly forbidden.

2.3 **Vehicle type eligibility**

Vehicles will be eligible in the Sports Racing Cars class.

To be eligible in the Sports Racing Cars class, a vehicle must have a technical form for Sports Racing Cars, delivered by the Organisers

2.4 **Regulation and eligibility amendments**

Each year in October at the latest the Organisers will publish changes made to these regulations.

All such changes will take effect on the second 1st of January following their publication.

Changes for safety reasons may be made without notice.

Changes covered by Articles 4.1.2, 5.3.4, 5.4.5 and 6.5.2 will be made in accordance with the period of notice specified in the relevant Sporting Regulations, save in circumstances deemed to be exceptional by the governing body of the relevant Championship.

2.5 **Compliance with the regulations**

It is the duty of each competitor to satisfy the Scrutineers and the Stewards of the Meeting that his car complies with these regulations in their entirety at all times during an event.

A car, the construction of which is deemed to be dangerous, may be excluded by the Stewards of the meeting.

2.6 **Measurements**

All measurements must be made while the car is stationary on a flat horizontal surface or as provided in the Sporting Regulation of the relevant Championship

2.7 **Electronic system**

Any automatic or electronic chassis control system or function is forbidden.

This includes anti-lock braking, traction control, automatic or semi-automatic transmissions, power-driven clutches, electronica or automatically adjusted final drive differential systems, damper, suspension or ride height adjustment, power braking, four-wheel steering, movable ballast.

Semi-automatic or automatic gearboxes and differentials with electronic, pneumatic or hydraulic slip control are forbidden.

Closed-loop electronically controlled systems are prohibited.

A simple open-loop electrical switch activated by the driver acting on a system is not considered to be an electronic control.

Power steering may be employed as long as it is a simple system, without programmable control.

2.8 **Material**

Titanium is not permitted unless explicitly authorised by the current regulations. The use of material which has a specific yeild modulus greater than 40 Gpa/g/cm3 is forbidden

The use of magnesium sheet less than 3mm thick is forbidden

## ARTICLE 3 BODYWORK AND DIMENSIONS

TC

### DIAGRAM

### Sports Racing Cars Classes SR1 And SR2 Chassis And Bodywork Dimensions

3.1 **Dimensions**

All bodywork dimensions and shape must comply with those specified on the technical form.

- Maximum overall length : 4650 mm

- Maximum overall width : 2000 mm

- Maximum height of the bodywork : 965 mm  
(including the rear wing)

- Minimum height of the rear rollover structure: 1020 mm

Each height is measured from the Flat bottom (Reference Surface) defined in the Article 3.5.

3.2 **Overhangs and wheelbase**

The front and rear overhangs must comply with those specified on the technical form.

- Maximum front overhang : 1000 mm

- Maximum rear overhang : 1000 mm
- Minimum wheelbase : 2700 mm
- Front plus rear overhangs must not exceed 80 % of the wheelbase.
- The difference between the front and rear overhangs must not exceed 15 % of the wheelbase.

3.3

**Windscreen**

Optional.

3.4

**Bodywork**

The material used for the bodywork parts is free.

3.4.1

**Viewed from above and from the rear:**

The bodywork must fully cover the wheels and tyres and all mechanical components, including the gearbox, above the wheel centre line level, with no empty space or cut-out in the bodywork (with the wheels aligned and the car positioned to go straight ahead).

**Viewed from the side :**

No mechanical component can be visible, except wheel arches must remain open.

3.4.2

**Air inlets :**

The only functions permitted for the air inlets are the cooling of the radiators and brakes, the air intake of the engine, and the ventilation of the engine compartment and cockpit.

They must channel all the air flow onto the elements to be cooled and have no aerodynamic influence to improve the handling of the car.

They must also respect the maximum body height as defined in article 3.1.

They must neither protrude beyond the perimeter of the bodywork as viewed from above, nor protrude above the surface of the bodywork by more than 150 mm (this does not apply to the engine air inlet)

3.4.3

**Air outlets ; Louvres :**

\* Air outlets are permitted :

- on the front bonnet

- on the rear panel of the car up to the rear axle, provided that they do not allow the mechanical parts and the wheels to be seen from the rear and that they do not extend more than 20 mm beyond the surface of the bodywork.

- on the bodywork sides, provided they do not protrude beyond the perimeter of the bodywork.

- Aft of the front and rear wheels the openings made in the bodywork in order to extract air must not protrude beyond the perimeter of the car and must be situated below the plane passing through the front and rear axles' centreline, whatever the static ride height of the car as viewed from the side.

\* Air extraction louvres are authorised on the rear vertical panel of the car provided that they do not allow the mechanical parts and the wheels to be seen from the rear.

These louvres must not extend more than 20 mm beyond the surface of the bodywork.

Louvres for air extraction are mandatory over the front wheels, with a minimum area of 160 cm<sup>2</sup> per wheel

3.4.4

All parts of the bodywork, including any part having an aerodynamic influence, must be rigidly secured to the entire sprung part of the car (chassis/body unit), must not have any degree of freedom, must be securely fixed and remain immobile in relation to this part while the car is in motion.

3.4.5

There must be at least two safety fasteners securing bonnet/boot/engine covers, both of which are clearly indicated by red (contrasting colour) arrows.

It must be possible to remove or open the bonnet and boot without the use of tools

3.4.6

All bodywork joints in the vicinity of the refuelling connections must be designed in such a way as to prevent any leakage of fuel into the engine compartment and or cockpit during refuelling

3.4.7

Any device or construction that is designed to bridge the gap between the sprung part of the car and the ground is prohibited under all circumstances

3.5

**Flat bottom (Reference Surface)**

Between the front and at least the rear axle centre lines, all bodywork visible from directly beneath the car must lie on one plane.

This plane, called Flat Bottom or Reference Surface, must be a uniform, solid, hard, rigid (no degree of freedom in relation to the body/chassis unit), impervious surface, under all circumstances.

It is used as a reference for all the vertical measurements.

To help overcome any possible manufacturing problems, a tolerance of +/- 5 mm is permissible across this surface.

With the exception of the rear part of this surface, the periphery of the surface formed by these parts may be curved upward with a maximum radius of 50 mm.

At the sides the Flat Bottom may not exceed a longitudinal plane extending through the outer wheel centres.

A block, the minimum dimensions of which are 20mm x 100mm, must be mounted on the longitudinal centre line of the car at the rear edge of the block at the rear axle centreline.

The block may be extended on each face to provide a leading edge.

The lower surface of this block must never be less than 20 mm below the Flat bottom.

No sprung part of the car is permitted below the flat bottom, except the above block, and air may pass between the bodywork and the Flat Bottom, for cooling and ventilation purposes only.

No opening will be permitted in the Flat Bottom except for hatches necessary for maintenance, openings for air jacks (95 mm maximum diameter) and cut-outs necessary for suspension parts travel.

- 3.6 **Aerodynamic devices**
- 3.6.1 Elements banned :  
Tunnels, ducts, skirts, diffusers, extractors or other devices for the purpose of inducing downforce within or without the exterior shape of the body are prohibited behind the front axle centre line.  
Any rear diffuser is forbidden.
- 3.6.2 Front aerodynamic devices :  
Forward of the front axle centre line, no bodywork element having a wing profile is permitted.  
Additional aerodynamic devices may be added to the front bodywork of the car :  
- Below and forward of the front axle centre line  
- Outboard of two longitudinal and vertical planes, symmetrical around the longitudinal centre line of the car and separated by the width of the front track  
provided that :  
- They do not obstruct the driver's view  
- They are strongly secured  
- They remain within the maximum dimensions specified in Article 3.1 and 3.2.
- 3.6.3 Rear wing :  
The primary device permitted for exerting downforce (negative lift) shall be a non-movable, adjustable wing carried at the rear of the car.  
This wing must not be adjustable from the cockpit, and must be rigid so that its angle or shape is not influenced by air pressure when the car is in motion.  
The rear wing is made of the following parts :  
Main wing; Guard plates; Vertical supports.  
- It must be no wider than the overall width of the car.  
- It must be mounted such that no part is higher than 965 mm above the Reference Surface (Flat bottom).  
- The main wing must be contained within a parallelogram of 150 x 400 mm horizontally and must have a maximum of 2 elements.  
- The gap between the guard plates and the bodywork must never be less than 100 mm.  
- The surfaces of the guard plates must not be curved and must be parallel to the longitudinal axis of the car with a maximum horizontal length of 520mm.  
**Only for cars designed as from 1 January 2000 :**  
- It must be possible to remove the rear bodywork without disturbing the rear wing or its mounting in any way.

#### ARTICLE 4

TC

##### WEIGHT

- 4.1 **Minimum weight**
- 4.1.1 The weight of the car must not be less than 900 kg.  
See TR 5.9.
- 4.1.2 The right is reserved, by the Sporting Authority of the relevant Championship, to adjust the weight of any car to maximise equality of performance.
- 4.2 **Ballast**  
Ballast must be secured such that tools are required for its removal and so as to allow the fixing of seals by the scrutineers.
- 4.3 **Adding during the race**  
The adding to the car during the race of any solid material whatsoever or the replacement during the race of any part of the car with another which is materially heavier is forbidden.
- 4.4 **Liquids**  
The weight may be checked at any time during the event with the quantity of liquids remaining in the tanks except after the race when the car will be emptied of all the fuel before weighing.

#### ARTICLE 5

TC

##### ENGINE

- 5.1 **General**  
Provided the regulations in Articles 5.1 to 5.8, and eligibility requirements are complied with, the engine and ancillaries are free.
- 5.2 **Elements banned**
- 5.2.1 Variable valve timing is not permitted
- 5.2.2 Variable length inlet systems are not permitted.
- 5.2.3 Titanium is not permitted, except for connecting rods, valves, valve retainers and heatshields.
- 5.2.4 The use of any ceramic component is forbidden.
- 5.2.5 The use of carbon or composite materials is restricted to clutches and non-stressed covers or ducts.

- 5.2.6 Only a direct mechanical linkage between the throttle pedal and the engine is permitted.
- 5.3 **Normally aspirated engines**  
Engine types are limited to normally aspirated four-stroke, and rotary petrol engines.
- 5.3.1 Cylinder capacity :  
The cylinder capacity is limited to 6000 cm<sup>3</sup>.
- 5.3.2 The engine air intake system must be fitted with one or two air restrictors 3 mm long with maximum diameters set out in TR 5.9.
- 5.3.3 All the air feeding the engine must pass through these restrictors, which must be made of metal or metal alloy.
- 5.3.4 The right is reserved, by the Sporting Authority of the relevant Championship, to adjust the size of these air restrictors to maximise equality of performance.
- 5.3.5 The right to adjust the maximum permitted rpm limits, to maximise performance is reserved by the series organisers. see Art 2.4
- 5.4 **Turbocharged engines**
- 5.4.1 Cylinder capacity :  
The maximum capacity of turbocharged engines is 4000 cm<sup>3</sup>.
- 5.4.2 The engine air intake system must be fitted with one or two air restrictors 3 mm long with maximum diameters set out in TR 5.9.
- 5.4.3 All restrictors must comply with drawing 254-4, or may incorporate between the restrictor and the inlet diameter of the supercharging device a single-piece, airtight cone.  
Each cone must have a minimum 7 degrees opening angle.  
On each end and over a maximum length of 10 mm, a curved shape is permitted.  
At the base of each cone, a radius is permitted within the diameter of the restrictor and the diameter of the supercharging device.
- 5.4.4 All the air feeding the engine must pass through these restrictors, which must be made of metal or metal alloy.
- 5.4.5 The right is reserved, by the Sporting Authority of the relevant Championship, to adjust the size of these air restrictors to maximise equality of performance.
- 5.4.6 Turbocharged cars must not be equipped with any device which allows the boost pressure, or the electronic management system controlling the boost pressure, to be adjusted while the car is in motion.
- 5.4.7 Variable diameter inlets and adjustable internal vanes on turbochargers are forbidden
- 5.4.8 Maximum (absolute) supercharging pressure (See table, TR 5.9.) will be monitored throughout an event by equipment fitted to the car see commercial conditions
- 5.5 **Temperature of the charge**
- 5.5.1 Intercoolers are free and may be used for cooling intake air.  
Apart from intercoolers, any device, system, procedure, construction or design the purpose and/or effect of which is any decrease whatsoever of the temperature of the intake air and/or of the charge (air and/or fuel) of the engine is forbidden.  
The pipes between the supercharging device, the intercooler and the manifold are free, but their only function must be to channel the intake air.
- 5.5.2 Internal and/or external spraying or injection of water or any substance whatsoever is forbidden (other than fuel for the normal purpose of combustion in the engine).
- 5.6 **Cooling**  
The cooling system is free.
- 5.7 **Exhaust**  
Provided the regulations in Articles 5.7.1, 5.7.2, and 5.7.3 are complied with, the exhaust system is free.
- 5.7.1 The noise generated by the car is not to exceed 110 dB (A) at 3800 rpm, or at three quarter maximum revs if less.  
This will be measured at a distance of 0.5 m and at a 45 degree angle to the point of exit of the exhaust.  
For front-engined cars having the exhaust exit on the side of the car, the noise will be measured at 90° from the side of the car.  
All measures which are taken to ensure that the maximum noise limits are not exceeded must be permanent in nature, and must not be removed by the exhaust gas pressure.
- 5.7.2 The orifices of the exhaust pipes must be placed at a maximum of 450 mm and a minimum of 100 mm from the ground.  
The exit of the exhaust pipe must be situated within the perimeter of the car and less than 100 mm from this perimeter, and aft of the vertical and transversal plane passing through the centre of the wheelbase.  
Moreover, adequate protection must be provided in order to prevent heated pipes from causing burns.  
The exhaust system must not be provisional.  
Exhaust gas may only exit at the end of the system.  
Parts of the chassis must not be used to evacuate exhaust gases.
- 5.7.3 The exhaust system must be adequately isolated from the driver compartment.
- 5.8 **Telemetry**  
The use of telemetry is forbidden.
- 5.9 **Restrictor Sizes**

SportsRacing Cars, Class SR1 - Minimum Weights 900 kg								
NORMALLY ASPIRATED				TURBO / SUPERCHARGED				
Capacity cc	Restrictors mm		Capacity cc	Restrictors mm		Boost Pressure mmb		
	Single	Twin		Single	Twin			
4 Valve Engines			4 Valve Engines			2 Valve	4 Valve	
6000 «	44.4	31.2	4000	45.4	32.4	1700	1500	
5500	44.9	32.1	3800	45.4	32.4	1790	1580	
5100	45.9	32.8	3600	45.4	32.4	1900	1670	
4500	46.3	33.1	3400	45.4	32.4	2010	1770	
4000	46.8	33.4	3200	45.4	32.4	2130	1880	
3500	47.3	33.8	3000	45.4	32.4	2270	2000	
3000	47.8	34.1	2800	45.4	32.4	2440	2150	
			2600	45.4	32.4	2630	2310	
			2400	45.4	32.4	2840	2500	
			2200	45.4	32.4	3100	2730	
			2000	45.4	32.4	3410	3000	
5 Valve Engines								
4000	47.3	33.8						
« Variable Timing BMW V12								

SportsRacing Cars, Class SR1 - Normally Aspirated Cam In Block 2V Engines			
Capacity cc	Restrictors mm		Restrictor sizes for other 2v types or rotary engines on application to the Technical Director with full engine details
	Single	Twin	
6000	46.4	33.2	
5500	47.7	34.1	
5100	48.9	35.2	

SportsRacing Cars, Class SR1 - Minimum Weight 920 Kg - Selected Cars Only							
2 Valve Restrictor Sizes Already Corrected							
NORMALLY ASPIRATED - 2V			TURBO / SUPERCHARGED				
5100 2 Valve	50.5	35.8	3000	47.8	34.1		2000
Selection for this class is not automatic. It is designed to improve the balance of older, lower specification cars. Teams must submit full details for consideration. The decision of the Series organisers is final							

<b>SportsRacing Lights, Class SR2</b>	
WEIGHT	720 kg
CAPACITY MAXIMUM	3000 cc - Normally Aspirated
RESTRICTOR mm	Single: 38.0 Twin : 27.2

**ARTICLE 6  
FUEL PIPING,  
PUMPS AND TANKS**

TC

Provided the regulations in this Article are complied with, the fuel system is free.

- 6.1 **Fuel tank**
- 6.1.1 No part of the fuel tank(s) is allowed more than 65cm from the longitudinal centreline or, outside the area between the front and rear wheel centrelines, of the car. The fuel cells must be separated from the cockpit and the engine compartment by means of a firewall.
- 6.1.2 All fuel tanks must be rubber bladders conforming to or exceeding the specifications of FIA/FT3 or FIA/FT3 1999.
- 6.1.3 All rubber bladders must be made by manufacturers homologated by the FIA.
- 6.1.4 All rubber bladder shall have a printed code indicating the name of the manufacturer, the specifications to which the tank has been manufactured and the date of manufacture.
- 6.1.5 No rubber bladders shall be used more than 5 years after the date of manufacture, unless inspected and recertified by the manufacturer for a period of up to another 2 years.
- 6.2 **Fittings and piping**
- A radiator is permitted in the fuel circuit.
- 6.2.1 All fittings which constitute the walls of the tank (including air vents, inlets, outlets, tank fillers, inter-tank connectors and access openings) must be metal or composite fittings bonded into the fuel tank.
- 6.2.2 All fuel lines between the fuel tank and the engine must have a self-sealing breakaway valve. This valve must separate at less than 50 % of the load required to break the fuel line fitting or to pull it out of the fuel tank.
- 6.2.3 No lines containing fuel, cooling water or lubricating oil may pass through the cockpit. The air vent(s) and their valves may pass through the cockpit provided that they are made from aviation type material and not have any connections, other than to the (tank/roof) bulkheads. The vent and filler spouts may pass through the cockpit as close to the walls as possible. Their pipes must be made from metal and their connectors from material identical to that used for the walls of the tank. They must be isolated from the cockpit by means of a leakproof protection.
- 6.2.4 All lines must be fitted in such a way that any leakage cannot result in accumulation of fluid in the cockpit.
- 6.2.5 When flexible, all lines must have threaded connectors and an outer braid which is resistant to abrasion and flame.
- 6.2.6 All fuel and lubricating oil lines must have a minimum burst pressure of 41 bar at the maximum operating temperature of 135°C.
- 6.2.7 All hydraulic fluid lines which are not subjected to abrupt changes in pressure, with the exception of lines under gravity head, must have a minimum burst pressure of 41 bar at the maximum operating temperature of 204°C when used with steel connectors and 135°C when used with aluminium connectors.
- 6.2.8 All hydraulic fluid lines subjected to abrupt changes in pressure must have a minimum burst pressure of 70 bar at the maximum operating temperature of 204°C.
- 6.2.9 No hydraulic fluid lines may have removable connectors inside the cockpit.
- 6.2.10 The vent lines must be fitted with a gravity-activated rollover valve.
- All the fuel pumps must operate only when the engine is running, except during the starting process.
- 6.2.11 The air ducts must be made from a non-flammable material.
- 6.3 **Fuel tank fillers**
- 6.3.1 All cars must be fitted with fuel tank fillers and vents which must be combined or single units, installed or not on both side of the car (in accordance with drawing 252-5; the interior diameter D must not exceed 50 mm). Both fillers and air vents must be equipped with leakproof dry break couplings complying with the dead man principle and therefore not incorporating any retaining device when in an open position.
- 6.3.2 The tank fillers and vent holes must not protrude beyond the bodywork.
- 6.3.3 The tank fillers, vent holes, vents and breathers must be placed where they would not be vulnerable in the event of an accident.



- 6.3.4 Any vent or breather connecting the tank to atmosphere must exit on the outside of the bodywork, must be fitted with a non-return valve and must be designed in such a way as to avoid any liquid leakage when the car is running, upside down, refuelling.
- 6.3.5 All cars must be fitted with a self-sealing connector which can be used by the scrutineers to obtain samples of the fuel feeding the engine.  
This connector must be of the type approved by the FIA and must be fitted immediately before the injectors.
- 6.4 **Refuelling during the race**
- 6.4.1 Refuelling the car by any other means than gravity, with a maximum height of 2 metres above the track where the refuelling takes place, is forbidden throughout the event.
- 6.4.2 During the race, only one autonomous supply tank complying with drawing 252-7 must be used per car.  
This tank must have a simple cylindrical internal shape and must not have any additional internal parts.  
For safety reasons, this tank must be fixed, through a tower, onto a trolley with the following characteristics :  
- all the tower components must be mechanically assembled without any degree of freedom in relation to the trolley  
- the base of the trolley must have a surface area of at least 2 m<sup>2</sup> and must be made with a case fitted on 4 self-braking castors, ballasted with a weight greater than that of the tank filled with fuel.
- A system for weighing the fuel may be applied through placing a weighing plate underneath the tank, provided that the characteristics set out above are respected.  
A member for supporting the refuelling lines and air hoses may be attached to the trolley :  
- it must be independent of the tank and of the tower.  
- it is recommended that this member be allowed a degree of freedom in relation to the trolley (rotation following a vertical axis).  
- it must not exceed 4 m in length and must allow a free passage of a height of 2 m over its entire length, including the accessories.  
- an identification plate bearing the race number of the competing car must be fixed to its end.
- 6.4.3 Above the tank there must be an air vent system approved by the FIA.
- 6.4.4 The refuelling pipe, minimum length 250 cm, must be provided with a leakproof coupling to fit the filler mounted on the car and during refuelling the outlet of the air vent must be connected with an appropriate coupling of the same diameter to the supply tank.
- 6.4.5 Before refuelling commences, the car and all metal parts of the refuelling system, from the coupling to the supply tank and its rack, must be connected electrically to earth by a manual contactor having no other function.
- 6.4.6 A 90° spring loaded cut-off valve, situated on the outlet of the supply tank and controlling the fuel flow, must be manned at all times during refuelling.
- 6.4.7 A self-closing valve with an internal diameter of 38 mm must be fixed under the supply tank according to drawing 252-7.  
All hoses and fittings used must have a maximum inside diameter of 1.5".
- 6.4.8 During practice, the standard supply tank or an unpressurised container not exceeding 25 litres capacity which is vented to air and has a leakproof coupling connecting it to the tank filler on the car can be used.
- 6.4.9 If a visible level is fitted to the tank, it must be fitted with isolating valves as close as possible to the tank.
- 6.4.10 The storing of fuel on board the car at a temperature less than 10°C below the ambient temperature is forbidden.  
The use of a specific device, whether on board the car or not, to reduce the temperature of the fuel below the ambient temperature is forbidden.
- 6.5 **Fuel capacity .**
- 6.5.1 The maximum amount of fuel which may be carried on board is 80 litres.  
Any device, system, procedure, construction or design, the purpose and/or effect of which is to increase in any way whatsoever, even temporarily, the total fuel storage capacity beyond the maximum of 80 litres, is forbidden.
- 6.5.2 The right is reserved, by the Sporting Authority of the relevant Championship, to adjust the size of the fuel tank to maximize equality of performance

## ARTICLE 7 LUBRICATION SYSTEM

TC

Provided the regulations in this Article are complied with, the lubrication system is free.

- 7.1 **Oil tanks**  
No vessel or line containing oil is permitted in the cockpit, more than 650 mm (external measurement) from the longitudinal cent line of the car, aft of the gearbox or in a vulnerable area.  
If the oil tank is outside the wheelbase, it must be surrounded by a 10 mm thick crushable structure.
- 7.2 **Catch tank**  
When a car's lubrication system includes an open type sump breather, it must vent into a catch tank of at least 3 litres capacity.

## ARTICLE 8 ELECTRICAL EQUIPMENT

TC

Provided the regulations in this Article are complied with, the electrical system is free.

8.1 **Battery**

Batteries must be securely fixed and completely surrounded by a box made of insulating material. If located in the cockpit they must be in the place of the co-driver, and the protection box must include an air vent which exits outside the cockpit.

If the battery situated in the cockpit is a dry battery, it must be protected electrically by a cover which covers it completely.

8.2 **Starting**

A starter must be fitted and be in working order at all times during an event.

The driver must also be able to operate the starter when seated normally.

8.3 **Lighting equipment**

8.3.1 All lighting equipment must be in working order at all times during the Event.

8.3.2 **Headlights :**

The car shall be fitted with at least 2 headlights, the centres of which must be symmetrical around the longitudinal centre line of the car and separated by at least the width of the front track.

For safety reasons, it is obligatory for headlights to produce a white beam.

8.3.3 **Rear lights and Stop lights :**

The car shall be fitted with two rear lights and two stop lights located symmetrically around the longitudinal centre line of the car and separated by at least the width of the rear track.

8.3.4 **Direction indicators :**

The car shall be fitted with direction indicators fitted on either side at the front and at the rear.

8.3.5 **Light for rain**

All cars must have a red light of at least 21 watts, in working order throughout the event, which:

- is a model approved by the FIA.

- faces rearwards at 90° to the car centre line.

- is clearly visible from the rear.

- is mounted not more than 10cm from the car centre line.

- is at least 35 cm above the reference plane.

- is no less than 45 cm behind the rear axle centre line, measured to the face of the lens and parallel to the reference plane.

- can be switched on by the driver when seated normally in the car.

The three measurements being taken to the centre of area of the lens.

**ARTICLE 9**

**TC**

**TRANSMISSION**

Provided the regulations in this Article are complied with, the transmission system is free.

9.1 **Transmission to the wheels**

9.1.1 Four wheel-drive is forbidden.

9.1.2 The gearbox must comprise a maximum of 6 ratios and a reverse gear. Sequential gearbox systems are allowed.

9.1.3 Viscous differentials are not considered to have hydraulic slip control, provided outside control is not possible when the car is in motion.

9.1.4 For safety reasons, the transmission must be designed in such a way that should the car be stopped and the engine stalled, it is possible to push or tow it.

9.2 **Reverse gear**

All cars must have a reverse gear which, at any time during the event, can be selected while the engine is running and used by the driver when seated normally.

9.3 **Clutch**

A conventional design, physically operated either mechanically or hydraulically by the driver, is mandatory.

**ARTICLE 10**

**TC**

**SUSPENSION AND**

**STEERING**

10.1 **Sprung suspension**

Cars must be fitted with sprung suspension.

The anchorage points of the suspensions must not consist solely of bolts located through flexible bushes or mountings.

There must be movement of the wheels to give suspension travel in excess of any flexibility in the attachments.

10.2 **Suspension type and mounting**

10.2.1 The material, number and dimensions of the springs are free.

The modification of spring and shock absorber adjustments from the cockpit is prohibited.

- 10.2.2 Shock absorbers are free provided their number remains identical to the one specified on the technical form of the car.
- 10.3 **Chromium plating**  
Chromium plating of steel suspension members is forbidden.
- 10.4 **Suspension members**  
All suspension members must be made from a homogeneous metallic material.
- 10.5 **Steering**  
The steering is free but must consist of a mechanical link between the driver and the wheels and must comply with the one specified on the technical form of the car.
- 10.5.1 A quick release steering wheel is mandatory..
- 10.5.2 The steering wheel rim must be continuous, but may be 'D' shaped
- 10.6 **Power steering**  
Power steering is permitted.
- 10.7 **Four-wheel steering**  
The use of four-wheel steering is forbidden.

## ARTICLE 11

TC

### BRAKES

- 11.1 **Separate circuits**  
With the exception of the restrictions set out below, the complete braking system is free provided it incorporates at least two separate circuits operated by the same pedal.  
This system must be designed so that if leakage or failure occurs in one circuit, the pedal shall still operate the brakes on at least two wheels.
- 11.2 **Brake discs**  
**Carbon brake discs are prohibited.**  
A maximum of one brake disc per wheel is permitted, with a maximum of two pads.  
Brake disc bells may be aluminium alloy or ferrous material only. Titanium is prohibited
- 11.3 **Anti-lock braking and power braking**  
Any anti-lock braking function and any power braking function are prohibited.
- 11.4 **Brake callipers**  
MMC or Alloy Beryllium material (80gpa/99Newton) forbidden.

## ARTICLE 12 WHEELS AND

TC

### TYRES

- 12.1 **Dimensions**
- 12.1.1 Complete wheels :  
Maximum width : 16".  
Maximum diameter : 28.5".  
Measurements will be taken horizontally at the height of the axle centre line.
- 12.1.2 Wheels :  
The maximum authorised diameter of the rims is 18".  
The minimum authorised diameter of the rims is 16".  
All the rims must be of the same diameter.
- 12.2 **Wheel visibility**  
The complete wheel above the hub centre line must not be visible in plan view, with the wheels aligned for the car to proceed straight ahead.
- 12.3 **Wheel material**  
Wheel material is free, provided that it is homogeneous and metallic.  
The front wheel must weigh a minimum of 8 kg.  
The rear wheel must weigh a minimum of 9 kg.
- 12.4 **Number of wheels**  
The maximum number of wheels is four.
- 12.5 **Wheel attachment**  
Wheel attachment is free but if a single wheel nut is used, a safety spring must be in place on the nut or on the stub axle whenever the car is running, and must be replaced after each wheel change.  
These springs must be painted Day-Glo red or orange.  
Alternatively, another method of retaining the wheels may be used, provided it has been approved by the FIA.
- 12.6 **Pneumatic jacks**

- 12.7 Pneumatic jacks may be fitted to the car, but compressed air bottles are not to be carried on board.  
**Pressure control valves**  
Pressure control valves on the wheels are forbidden.

## ARTICLE 13 COCKPIT

TC

- 13.1 **Cockpit**  
The cockpit shall be designed to ensure the best protection of the driver in the event of a crash or upset.
- 13.2 **Equipment permitted in the cockpit**
- 13.2.1 The following equipment alone is permitted in the cockpit but outside the two volumes prescribed in Article 13.4 :  
- Safety equipment and structures  
- Tool kit  
- Seat(s)  
- Controls necessary for driving  
- Electronic equipment  
- Driver cooling system  
- Ballast  
- Pneumatic jacks (no compressed air bottled to be carried on board)  
- Battery(ies)  
- Driver ventilation equipment
- 13.2.2 None of the above items may hinder cockpit exit.
- 13.2.3 The above components must be covered where necessary by a rigid protective material to minimise injury and must be attached such that they are able to withstand 25 g deceleration.
- 13.3 **Cockpit exit time**
- 13.3.1 The cockpit must be designed so as to allow the driver to get out from his normal driving position in 7 seconds.
- 13.3.2 For the purposes of the above test, the driver must be wearing all normal driving equipment, the seat belts must be fastened and the steering wheel must be in place in the most inconvenient position.
- 13.3.3 A quick-release steering wheel mechanism is mandatory.
- 13.4 **Volumes for occupants' legs**  
Two volumes of equal dimensions, defined by flat, rectangular surfaces, symmetrical around the longitudinal centre line of the car, must be provided for the legs of both occupants.  
The only components allowed to intrude into these volumes, any other being excluded, will be the steering column and its joints.  
Measurements of the volumes (to be enforced on all dimensions):  
a) Length : from the pedals to the vertical projection of the centre of the steering wheel.  
b) Width : 330 mm minimum.  
c) Height : 300 mm minimum.
- 13.5 **Protection of the driver**  
The areas adjacent to the driver must include materials which provide an anti-penetrant barrier
- 13.6 **Lateral protections**  
The chassis-body structure must provide a lateral protection at least 500 mm high from the floor up to the cockpit opening and along the total length of the opening.  
The vertical planes of the lateral protections must be separated by a minimum of 900 mm
- 13.7 **Cockpit opening**  
The cockpit opening (including the windscreen) must be at least 900 mm in width and 700 mm in length.  
These measurements shall be maintained for at least 80% to provide for radii in the corners.  
Nothing will be permitted on top of the cockpit opening except the rollover structure and driver head / shoulder restraints.
- 13.8 **Cockpit isolation**  
The cockpit shall be separated from the fuel tank and from the engine compartment by means of metallic firewalls with no holes.

## ARTICLE 14 SAFETY EQUIPMENT

TC

- 14.1 **Fire extinguisher**  
All new cars constructed from 01.01.2000 and competing in FIA Authorised Series must be fitted with FIA Homologated Systems.  
Existing cars with bottles/extinguishers meeting current regulations remain accepted until 31.12.2000.  
ALL CARS must have FIA Homologated Systems from 01.01.2001.  
**BCF/NAF products are prohibited from 01.01.2000**

- 14.2 **Safety belts**  
The wearing of two shoulder straps, one abdominal strap and two straps between the legs is compulsory. These straps must comply with FIA standard 8853-85 or 8853/98.  
The shoulder straps of the safety harnesses homologated according to FIA standard 8853-85 must have a width of 76 mm (3").
- 14.3 **Rear view mirrors**  
Position free.  
The car must be fitted with two rear view mirrors, one fitted on each side of the car, in order to give an efficient view to the rear. Each mirror must have a minimum area of 100 cm<sup>2</sup>.  
The scrutineers must be assured through a practical demonstration that the driver, seated normally, can clearly see the vehicles following him.  
To this end, the driver will be asked to identify letters or figures, 15 cm high and 10 cm wide, displayed at random on boards placed behind the car according to the following instructions :  
- Height : Between 40 cm and 100 cm from the ground.  
- Width : 2 m one side or the other of the centre line of the car.  
- Position : 10 metres behind the centre line of the rear axle of the car.  
They must not protrude outside the periphery of the car viewed from above.
- 14.4 **Seat and headrest**
- 14.4.1 It must be possible to fit two seats of equal shape and size (excluding head and or shoulder supports) symmetrically around the longitudinal centre line of the car.
- 14.4.2 All cars must be equipped with a headrest which cannot deflect more than 50 mm when a rearward force of 85 daN is applied. The headrest surface must not be less than 400 cm<sup>2</sup> and must be continuous and without protruding parts. It must be positioned so that it is the first point of contact for the driver's helmet in the event of an impact projecting his head backwards when he is seated normally.
- 14.5 **Master switch**
- 14.5.1 The driver, when seated normally with the safety belt fastened and the steering wheel in place, must be able to cut off all the electric circuits by means of a sparkproof circuit breaker switch. This switch must be clearly marked by a symbol showing a red spark in a white-edged blue triangle and be accessible by the driver with his safety belt fastened.
- 14.5.2 There must also be an exterior switch, with a handle which is capable of being operated from a distance by a hook. This switch must be located at the lower part of the main rollbar on the driver's side.
- 14.6 **Towing eye**
- 14.6.1 Two towing eyes with an inner diameter of between 80 mm and 100 mm, and a thickness of at least 5 mm, must be securely fitted to the front and rear parts of the car's chassis.
- 14.6.2 They must be positioned in such a way that they can be used should the car be stopped in a gravel bed.
- 14.6.3 The towing eyes must be clearly visible and painted in yellow, red or orange.
- 14.6.4 If a lifting / towing area is located on the main rollbar, it must be clearly identified with a Day-Glo yellow surround.

**ARTICLE 15  
SAFETY  
STRUCTURES**

**TC**

- 5.1 **Magnesium**  
The use of magnesium sheet less than 3 mm thick is forbidden.
- 5.2 **Rollover structures**
- 15.2.1 Front and rear rollover structures are mandatory. Rollover structures must be made of seamless mild steel or a higher-grade steel alloy.  
The tubes must have a minimum outside diameter of 45 mm or 50 mm (1.75") and a minimum wall thickness of 2.3 mm or 2.5 mm (0.09").  
The front and rear structures must be separated by at least 760 mm longitudinally.
- 15.2.2 The front rollover structure must meet the following requirements :  
- Be symmetrical in relation to the longitudinal centre line of the car.  
- The upper part shall be 660 mm minimum above the flat bottom.  
- No part of the steering wheel, whatever its position, may be higher than the rollover structure.
- 15.2.3 The rear rollover structure must meet the following requirements:  
- Be symmetrical in relation to the longitudinal centre line of the car.  
- Have a minimum overall width of 900 mm at the level of the mountings on the shell.  
- Have a diagonal reinforcement bar starting from the top of the hoop (driver's side) and connected as a minimum to the middle point of the chassis/monocoque structure.  
- Have two rearward facing braces connected to the top of the hoop.  
- The upper horizontal section of the rollbar (500 mm minimum in length) shall be at least 1020 mm above the flat bottom.  
Each rollover structure must be subjected to a specific static load test by applying loads on top of the structure.

The loads to be applied are as follows:

**For the front structure (only for cars built as from 01/01/2000):**

- A vertical load: 5.0 w  $\delta$  w = 1000 kg

The load to be applied central to the longitudinal axis of the car, the roll hoop being symmetrical.

Where the mandatory steel hoop is integral to a composite structure the load to be applied through a pad 20cm by 5cm which follows the contour of the structure at this point. There may be a rubber cover 3mm thick between the pad and the structure.

**For the rear structure :**

- 1.5 w laterally

- 5.5 w longitudinally  $\delta$  w = 1000 kg

- 7.5 w vertically.

The resultant of these loads shall be applied through a rigid flat pad positioned perpendicularly to the axis of this resultant.

The rollover structure must be attached to the survival cell which is supported on its underside on a flat plate, fixed to it though its engine mounting points and wedged laterally by pads 100 mm wide by 300 mm long.

The deformation must be less than 50 mm, measured along the axis of each load, and any structural failure must be limited to 100 mm below the top of the rollover structure, measured vertically.

In all cases, the tubes close to the driver must be padded with non-flammable foam approved by the FIA.

15.2.4 The driver's helmet must not extend higher than the line directly above the driver's head connecting the forward and rear rollover structures.

With the driver seated at the wheel, the rear rollover structure shall be at least 100 mm above the top of the driver's helmet.

15.2.5 Streamlining or fairing of the rear rollover structure is permitted no more than 200 mm horizontally, and provided the transverse plane passing through the rollbar tubing centre remains symmetrical.

The fairing must not cover the roll bar mounting area over the main structure, or have any aerodynamic influence.

15.2.6 All facilities must be given for possible inspections made by the Scrutineers.

15.3 **Safety structures**

15.3.1 **Survival cell :**

The chassis structure must include a survival cell extending from behind the fuel tank to a plane at least 150 mm in front of the sole of the driver's feet, with his feet resting on the pedals and the pedals in the inoperative position.

The safety structures described in Article 15 must be a part of the survival cell or solidly attached to it.

15.3.2 **Frontal absorbing structure :**

An impact absorbing structure must be fitted in front of the survival cell.

This structure needs not be an integral part of the survival cell but must be solidly attached to it.

**Cars that have raced in the ISRS and SportsRacing World Cup prior to 31/12/99 are exempt from crash testing until 31/12/2000, but must have their Technical Registration form approved by the Technical Director.**

15.3.3 **Crash testing of the frontal absorbing structure :**

The frontal absorbing structure, and at least the part of the survival cell forward of a transversal section 200 mm to the rear of the soles of the driver's feet in static position, must be subjected to an impact test against a solid, vertical barrier placed at right angles the longitudinal axis of the car.

The test structure must be solidly attached to the trolley in such a way as not to increase its impact resistance.

For the purpose of the test, the total weight of the trolley and test structure or complete car shall be 1050 kg and the velocity of impact 12 m/s.

During the test, the maximum average deceleration must not exceed 25 g and the final deformation must be contained within the zone ahead of the soles of the driver's feet

15.3.4 **Side load of the frontal impact absorbing structure :**

To test the attachments of the frontal impact absorbing structure to the survival cell, a static side load test shall be performed on a vertical plane passing 500 mm forward of the front wheel axle.

A constant transversal and horizontal load of 2000 daN must be applied to one side of the impact absorbing structure using a pad identical to the one used in the lateral tests in Article 15.3.6.

The centre of area of the pad must pass through the plane mentioned above and the mid point of the height of the structure at that section.

After 30 seconds of application, there must be no failure of the structure or of any attachment between the structure and the survival cell.

During that test, the same part of the box members as defined in the frontal impact test above or the complete survival cell will be solidly secured to a flat plate but not in such a way as to increase the strength of the attachments being tested.

15.3.5 **Crash testing of the complete car :**

The survival cell and frontal absorbing structure can be designed freely subject to the following conditions :

a) The general prescriptions of paragraph 15.3.1 above must be followed.

b) The crash testing defined in paragraph 15.3.3 above must be performed identically but with the complete monocoque including the frontal absorbing structure and the survival cell.

The entire crash structure must be solidly fixed to the trolley through its engine mounting points but not in such a way as to increase its impact resistance.

The fuel tank must be fitted with its fuel bladder full of water.

A dummy weighing at least 75 kg must be installed in the survival cell with the safety belts defined in Article 14.2 fastened.

However, with the safety belts unfastened, the dummy must be able to move forwards freely in the cockpit.

The extinguishers, as described in Article 14.1, must also be fitted.

15.3.6 **Side load tests on the survival cell :**

In addition, the survival cell must be subjected to three separate static load tests :

- In the cockpit area on a vertical plane passing through the centre of the seat belt lap strap fixing.
- In the fuel tank area on a vertical plane passing through the centre of area of the fuel tank in side elevation.
- On a vertical plane passing halfway between the front wheel axis and the centre of the dashboard.

For the test described above, a pad 100 mm long and 300 mm high, with a maximum radius on all edges of 3 mm and conforming the shape of the survival cell, shall be placed against the outermost sides of the survival cell with the lower edge of the pad at the lowest part of the survival cell at that section.

It is permissible to place rubber 3 mm thick between the pads and the survival cell.

A constant transversal and horizontal load of 2000 daN shall be applied, in less than 3 minutes, to the pads at their centre of area through a ball-jointed junction, and maintained for a minimum of 30 seconds.

Under these load conditions, there shall be no structural failure of the inner or outer surfaces of the survival cell and permanent deformation must be less than 1 mm after the load has been released for 1 minute.

The deformation will be measured at the top of the pads across the inner surfaces.

15.3.7 The static load tests from article 15.3.3 to article 15.3.6 must be carried out under the supervision of an FIA technical delegate and using measuring equipment verified by the FIA, and must be the subject of an official request from the manufacturer or the competitor to the Technical Department of the FIA.

Each trip made by an FIA Technical Delegate will be subject to charge.

Any significant modification introduced into any of the structures tested shall require that part to undergo a further test

15.4 **Firewall**

Cars must be equipped with a firewall which is liquid-proof, flame-proof and gas-proof between the driver and engine to prevent the passage of flames from the engine compartment to the cockpit.

Any holes in the firewall must be of the minimum size for the passage of controls and wires and must be completely sealed.

15.5 **Composite chassis**

For any vehicle equipped with a composite chassis, any repairs to the survival cell or to the frontal protection must be carried out according to the manufacturer's specifications, in a repair centre approved by the manufacturer.

Any important damage must be entered on the technical passport.

## ARTICLE 16

TC

### FUEL

16.1 **Unleaded Fuel Only.** Conforming to FIA Art 252.9.1

Use only the fuel provided by the Series organiser at the circuit.

16.2 Only air may be mixed with the fuel as an oxidant.

## ARTICLE 17

The final text of these regulations is the English version which shall be used should any dispute arise over their interpretation.

### FINAL TEXT

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barcelona

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daytona

road america

brno

donington

nurburgring

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# **Organisation**