

SPECIFICATIONS OF AUTOMOBILES

1st Category – Racing Cars

Free Formula (formerly Formula Libre) For Race Events

Modified Article	Date of Application	Date of Publication

1. DESCRIPTION

Free Formula is for Single-seater racing cars of free concept and construction, complying with general requirements of 1st Category – Racing Cars and the specific requirements as detailed below. Regulations for a specific Race event may preclude the use of Free Formula cars.

2. ELIGIBILITY

2.1 LOGBOOKS:

- (a) Each Free Formula car shall require a CAMS Vehicle Log Book. A Free Formula racing car issued with a CAMS Vehicle Log Book prior to the 01/01/2016 and compliant with the general requirements of 1st Category – Racing Cars may enter events for Free Formula Racing Cars provided they remain unchanged to their original specifications at the time of issue of their original Log Book.
- (b) A vehicle that does not comply with Article 2.1 may seek to be approved for a Free Formula Log Book by application to CAMS. Criteria to be considered for approval includes:
 - (i) A vehicle previous issued with a Vehicle Log Book by an International FIA ASN; or
 - (ii) A vehicle that has a competition history as a single seater race car either Internationally or within Australia;

Each vehicle seeking this approval will be required to undergo an inspection by CAMS prior to the approval being granted.

3. FUEL TANK

3.1 FUEL TANKS:

- (a) Fuel tanks may not be positioned more than 65 cm from the longitudinal axis of the car and must be located within the limits defined by the front and rear wheel axes. The tank must be insulated by means of bulkheads preventing the fuel from passing into the cockpit or engine compartment or coming into contact with exhaust piping, in the event of spillage, leakage or any other accident occurring to the tank. Fuel tanks must be properly protected.
- (b) All the fuel stored on board the car must be situated between the front face of the engine and the driver's back when viewed in lateral projection. Furthermore, no fuel can be stored more than 300mm forward of the highest point at which the driver's back makes contact with his seat. However, a maximum of 2 litres of fuel may be kept outside the survival cell, but only the quantity which is necessary for the normal running of the engine.
- (c) Fuel must not be stored more than 400mm from the longitudinal car centre line.

4. FUEL LINES, PUMPS AND FILTERS

4.1 FUEL LINES:

- (a) Must have a minimum burst pressure of 41 bars (600 psi) at the minimum operating temperature of 135°C (250°F). When flexible, these lines must have threaded connectors and an outer braid resistant to abrasion and flame (do not sustain combustion).
- (b) No lines containing fuel may pass through the cockpit.
- (c) No fuel pumps or fuel filters may be fitted inside the cockpit.
- (d) All fuel lines, filters and pumps must be positioned in such a way that any leakage cannot result in fuel entering the cockpit.

5. AUTOMATIC FUEL-FLOW CUT-OFF

It is recommended that all fuel feed pipes going to the engine and return pipes from the engine be provided with;

- (a) automatic cut-off valves located directly on the fuel tank which automatically close all the fuel lines under pressure if one of these lines in the fuel system is fractured or leaks.
- (b) The vent lines must also be fitted with a gravity activated rollover valve.
- (c) All the fuel pumps must only operate when the engine is running, or during the starting process.

6. TANK FILLERS AND CAPS

- (a) All filler and vent caps must be designed to ensure an efficient locking action which reduces the risks of accidental opening following a crash impact or incomplete closing after refuelling.
- (b) The tank fillers, vents and caps must not protrude beyond the bodywork.
- (c) The tank fillers, vents and breathers must be placed where they are not vulnerable in the event of an accident.

7. OIL CATCH TANK

The catch tank must either be made of transparent material or include a transparent panel.

8. CABLES

Should the cables, lines or electrical equipment pass through or be fitted in the cockpit, they must be fully enclosed in a cover of a liquid-tight and fireproof material.

9. LONGITUDINAL LOCATION OF OIL SYSTEM

No other part of the car containing oil may be situated behind the complete rear wheels.

10. SUSPENSION

10.1 SUSPENSION MEMBERS:

In order to help prevent a wheel becoming separated in the event of all suspension members connecting it to the car failing provision must be made to accommodate flexible cables, each with a cross sectional area greater than 110mm², the purpose of which is to connect each wheel/upright assembly to the main structure of the car. The cables and their attachments must also be designed in order to help prevent a wheel making contact with the driver's head during an accident.

- (a) Each cable must have its own separate attachment which;
 - (i) is able to withstand a tensile force of 70kN ;
 - (ii) is able to accommodate a cable end fitting with a minimum inside diameter of 15mm.
- (b) Each wheel may be fitted with one or two cables, dependent upon their performance when tested under FIA Test Procedure 03/05. If one cable is fitted it must exceed the requirements of 3.1.1 of Test Procedure 03/05 and if two are fitted each must exceed the requirements of 3.1.2.
- (c) Each cable must exceed 450mm in length and must utilise end fittings which result in a tether bend radius greater than 7.5mm.

11. WHEEL MATERIAL

All wheels must be made from homogeneous metallic materials.

12. COCKPIT

12.1 COCKPIT AREA:

- (a) In order to ensure that the opening giving access to the cockpit is of adequate size, the template shown in Drawing 1 will be inserted into the survival cell and bodywork.
- (b) During this test the steering wheel, steering column, seat and all padding may be removed and:

- (i) the template must be held horizontal and lowered vertically from above the car until its lower edge is 525mm above the reference plane;
 - (ii) referring to Drawing 1, the rear edge of the template must be no less than 1500mm behind the front wheel centre line.
- (c) Any measurements made from the cockpit entry template, must also be made whilst the template is held in this position. Furthermore, the forward extremity of the cockpit opening, even if structural and part of the survival cell, must be at least 50mm in front of the steering wheel.
 - (d) The driver must be able to enter and get out of the cockpit without it being necessary to open a door or remove any part of the car other than the steering wheel.
 - (e) When seated normally, the driver must be facing forwards and the rearmost part of his crash helmet may be no more than 125mm forward of the rear edge of the cockpit entry template.
 - (f) From his normal seating position, with all seat belts fastened and whilst wearing his usual driving equipment, the driver must be able to remove the steering wheel and get out of the car within 5 seconds and then replace the steering wheel in a total of 10 seconds.
 - (g) For this test, the position of the steered wheels will be determined by the scrutineer and after the steering wheel has been replaced steering control must be maintained.

13. SEAT FIXING AND REMOVAL

Any seat made from foam must be covered with a non-flammable and non-combustible material.

14. STEERING

14.1 STEERING WHEEL, COLUMN AND RACK

- (a) The steering wheel, steering column and steering rack assembly must be subjected to an impact test. For the purposes of this test, these parts must be fitted to a representative test structure, any other parts which could materially affect the outcome of the test must also be fitted.
- (b) The test structure must be solidly fixed to the ground and a solid object, having a mass of 8kg and travelling at a velocity of 7m/s, will be projected into it. The object used for this test must be hemispherical with a diameter of 165mm.
- (c) For the test, the centre of the hemisphere must strike the structure at the centre of the steering wheel along the same axis as the main part of the steering column.
- (d) During the test the striking object may not pivot in any axis and the test structure may be supported in any way provided this does not increase the impact resistance of the parts being tested.
- (e) The resistance of the test structure must be such that during the impact the peak deceleration of the object does not exceed 80g for more than 3ms.
- (f) After the test the steering wheel quick release mechanism must still function normally.

15. SUSPENSION AND ANTI INTRUSION BARS

15.1 SIDE PANELS:

In order to give additional protection to the driver in the event of a side impact, an FIA-approved panel of uniform construction must be attached to the space frame;

- (a) This panel must extend from the front roll structure up to the rearmost edge of the fuel cell.
- (b) The panel must also cover the space frame from the bottom / floor chassis rail to the cockpit opening chassis rail.

15.2 Vehicles built before 01.01.2016

The specification of this panel is: DYOLEN of a minimum thickness of 10 mm which must be solidly attached to the main structure of tubular frame in the requested area in the following way:

- (a) at its extreme corners, the upper, lower, forward and rearward edge halfway between the corners, and halfway along each diagonal tube.
- (b) The attachment must consist of an 8mm U-bolt and an aluminium plate 3mm thick, 20mm wide and 12mm longer than the U-bolt span.

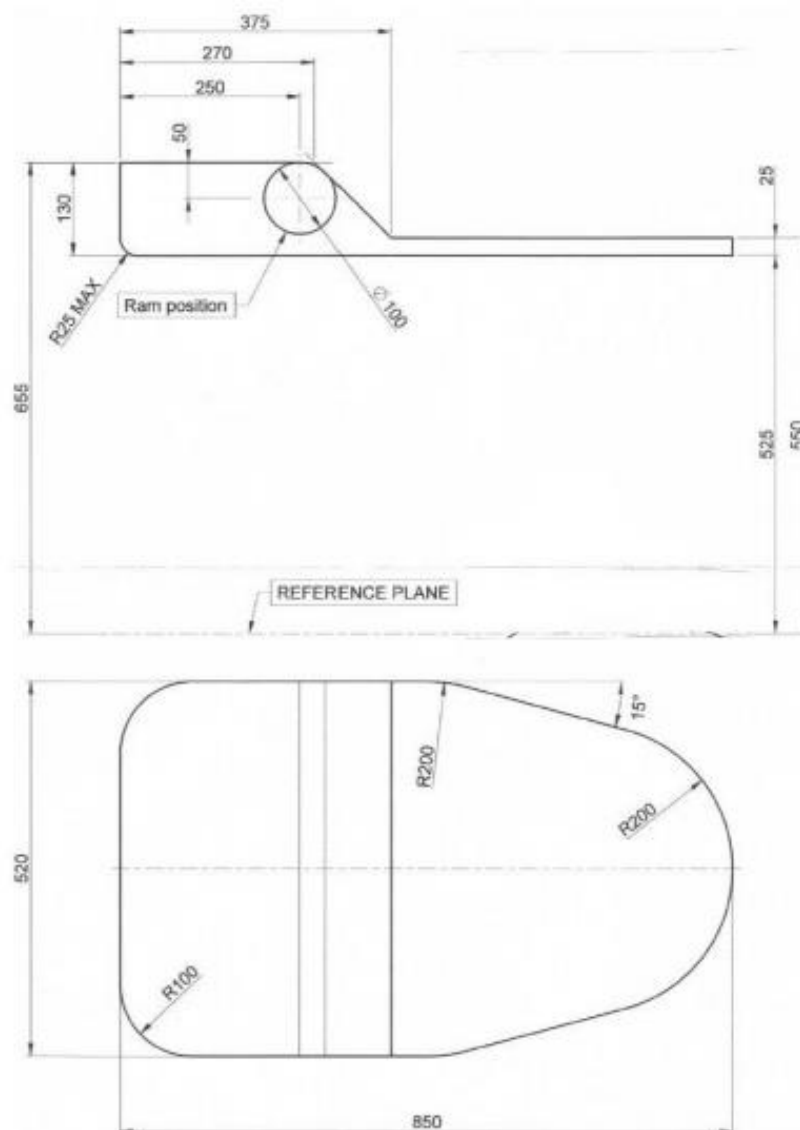
15.3 Vehicles built as from 01.01.2016 ((recommended also for cars built before this date)

- (a) The specification of this panel and its attachment is contained within FIA Technical list n° 42.
- (b) In order to prevent the intrusion of suspension parts into the survival cell during a side impact, each member of every front suspension component with two inboard mountings must be joined by a link as close to the survival cell as practical.
- (c) This link must be circular with a minimum diameter of 10mm, and any slip joint must be bolted or pinned and located in the centre of the span.

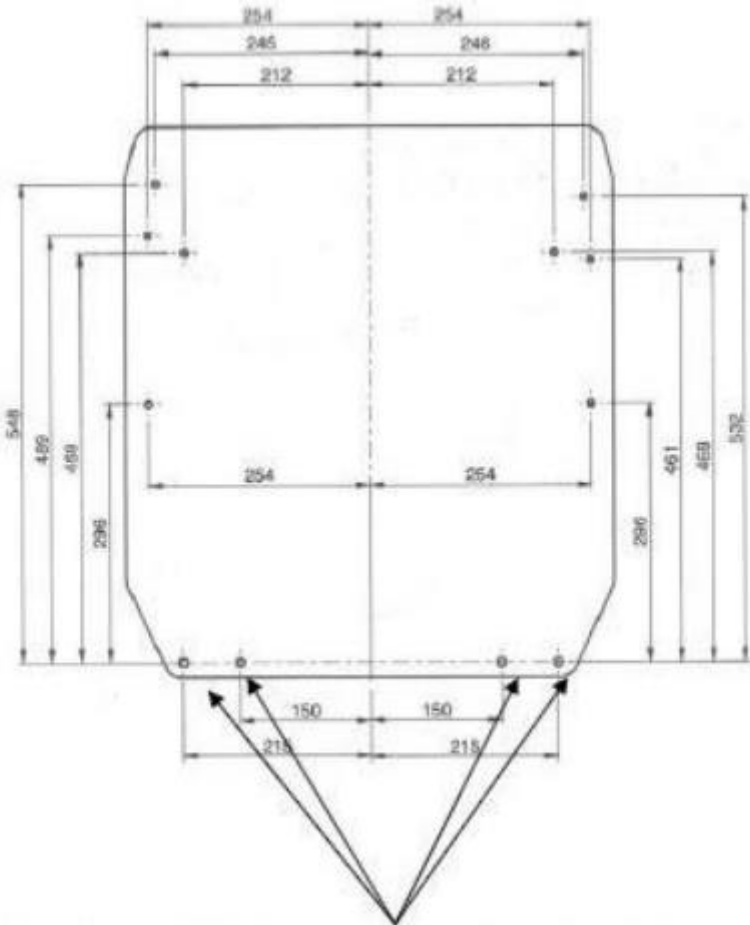
16. SURVIVAL CELL AND IMPACT PROTECTION

- (a) All engine fixation points on the survival cell as shown in Drawing 2 must lie in one plane which is normal to the reference plane and normal to the car centre line. A tolerance of 2mm in X-direction (along the car centre line) is permitted for manufacturing tolerances and the use of steel bushes.
- (b) When he is seated normally, the soles of the driver's feet, resting on the pedals in the inoperative position, shall not be situated to the fore of the vertical plane passing through the front wheel centre line.
- (c) Should the car not be fitted with pedals, the driver's feet at their maximum forward extension shall not be situated to the fore of the above mentioned vertical plane.

DRAWING 1.



DRAWING 2.



Engine fixation points on chassis side (lower 4 mounting points Ø 10mm all other points Ø 8mm)