

## UKRRA 2017

### UK Retro Racing Association Formula 1 Cars

#### Technical Regulations

There has been a request that we look at changing the minimum tyre diameter and minimum rear ground clearance in Formula One to enable tyres from F1 to be used in other classes. The 1st round at North London will be a trial for this. So in Formula One minimum tyre diameter will be 0.790" (20.066mm) and minimum rear ground clearance will be 0.040" (1.016mm). If after this trial it is welcomed by the racers it may be adopted in the rules.

#### General Specifications.

1. **Maximum Overall Car Width: 3.250" (82.55mm)**, measured across the front and rear axles, wheels and tyres.
2. **\*Maximum Chassis Width: 1.625" (41.28mm)**, measured across any part of the chassis, excluding axle tubes, axles, wheels and tyres.
3. **Wheelbase:**
  - A. **Maximum: 4.250" (107.95mm)**
  - B. **Minimum: 3.875" (98.43mm)**
4. **Rear Wheels and Tyres:**
  - A. **Maximum Rear Tyre Width: 0.810" (20.57mm).**
  - B. **Minimum Rear Tyre Diameter: 0.8125" (20.64mm).**
  - C. **Wheels can be made from any material and be of any diameter.**
  - D. **Rear Tyre Material: Free choice but must be black and not be made from, contain, or be coated with silicone.**
  - E. **Speed rubber is prohibited.**
5. **Front Wheels and Tyres:**
  - A. **\*Minimum Front Tyre Width: 0.375" (9.53mm).**
  - B. **Minimum Front Tyre Diameter: 0.750" (19.05mm).**
  - C. **Must be made of two pieces, i.e. a Wheel and a Tyre.**
  - D. **Wheels can be made from any material and be of any diameter.**
  - E. **Tyres must be glued to the wheels and be made of black rubber.**  
Only SBR, Wonder, and natural rubber type materials are acceptable.
  - F. **Tyres made from, containing, or coated with, silicone, urethane or other similar compounds must not be used.**
  - G. **Tyres may be coated with cyanoacrylate adhesive ("Super Glue") or nail polish.**
  - H. **Wheels with O-ring 'tyres' are prohibited.**
  - I. **Tyre contact patch must touch the track across the full width of the tyre. Coning, angling or knife-edging is not allowed.**
  - J. **Tyre edges may be rounded to a maximum 1/16" (1.6mm) radius.**
6. **Minimum Chassis Clearance:**

Measured with the car sitting on its tyres on a flat tech block and without the guide.

  - A. **Rear: 0.050" (1.27mm).** The entire motor bracket, gear, and all parts of the chassis, including pans, aft of the motor mounting face of the motor bracket must meet this clearance.
  - B. **Front: 0.015" (0.38mm),** measured under the most forward part of the chassis.
  - C. **The bottom surface of the whole chassis** (including the motor, but excluding the guide flag) **must be flat and straight in all directions**, with no bowing or drooping of any parts below the plane defined by the front and rear clearance specifications. This will be checked by applying a straight edge to the underside of the car both across the frame and along the length of the frame.

- D. Touch and Roll Check.** Scrutineers are instructed to ensure that all cars are checked, in the slot on the track being used for the event, to ensure that the Front Wheels touch the track surface and roll when the car is pushed forward.
7. **Axles (Front & Rear):**
- A. Minimum diameter 3/32" (2.36mm).
  - B. Both axles must be straight, one piece and made from solid steel.
  - C. Hollow axles are not permitted.
  - D. Front axles do not have to rotate but both front wheels must be mounted onto the same axle.
  - E. Front wheels may rotate independently.
  - F. Maximum front axle side play: 0.125" (3.18mm) as part of the maximum front track. At no time can the front wheels and tyres extend out past the body.
  - G. Axles must not protrude beyond the outer face of any wheel or tyre.
  - H. Axles may only be flattened in the areas where the wheels and gear are secured.
8. **Bushings and Bearings: Free Choice.**
9. **Drive Type:**
- A. 'Inline' only, with the motor shaft at 90° to the rear axle.
  - B. Offset motors are not permitted, i.e. the armature shaft of the motor must be located on the longitudinal centre line of the chassis.
10. **Drive Gears: Free choice.**
11. **Minimum Weight: 100 grams ready to race.**
12. **Rear Body Height:**  
Measured with the car sitting on its tyres on a flat tech block and without the guide, from the tech block surface to the top of the highest point of the body,
- Aa. Maximum for bodies with a 'duck tail' (Lotus 49B etc): 1.375" (34.93mm).
  - Ab. Maximum for all other bodies: 1.125" (28.58mm) excluding a roll hoop if fitted.
  - B. Severe raking of the body for aerodynamic effect is not allowed.
13. **Guide lead:** No maximum is specified but the guide flag, when in the straight ahead position, must be covered by the unmodified body when viewed from above.
14. **\*All front chassis parts, except the axle tubes, axles, wheels and tyres, must be covered by the unmodified body when viewed from above.**
15. **Parts of the rear chassis** can be visible through or on the sides of the rear section of the body only if the full size car was open in that area. For example, flat areas between the exhaust pipes may be left clear (but not removed), and chassis parts may be visible on the sides of bodies where the exhaust pipes gather in the centre over the gear area. **No chassis parts may be visible behind the rear end of the body.**

**\*Exceptions to rules A2, A5A and A14:**

Any car **already built** to earlier Socal D3 or CSCRA rules may continue to be used. These cars may have outriggers (suspension detail) at the front to which the axles or axle tubes can be attached provided that the width of the remainder of the chassis does not exceed 1.375" (34.93mm) at any other point.

These cars may also continue to use 0.225" (5.72mm) front tyres.

**They must, however, comply with every other rule contained in these regulations.**

## **B. Chassis.**

### **1. Chassis Type:**

Any chassis, built from scratch or from a commercially available kit or parts, and conforming to these specifications is allowed.

### **2. Chassis Materials:**

**Brass: sheet, rod, and tube.**

**Steel: wire, pin tubing, and commercial guide tongues.**

**Solder and Glues: may only be used for assembly of components.**

**No other materials are allowed.**

Chassis parts, such as pans, brackets, guide tongues, etc., that are made using EDM, laser, or water-cutting techniques are allowed only if they are individual commercially-available components or components of chassis kits, i.e. these techniques may not be used in the private manufacture of one-off components. **Materials** such as printed circuit board, glass fibre and carbon fibre are not permitted.

**3. Chassis Construction:**

**A. Each car must have a one-piece brass rear bracket** consisting of at least **three sides** (vertical or horizontal), with **each connected side** having a **minimum width or height** of at least **0.200" (5.08mm)**.

**B. The motor bracket must support the motor and extend to touch the rear axle tube.**

**C. The rear axle tube does not need to travel through the motor bracket.**

**D. The motor can be fixed to the motor bracket with screws and/or solder.**

**E. Wire or tubing rails must connect the front and rear sections of the chassis.** Using **metal strip** for this purpose is **not permitted**. A **rail is defined as that which connects the motor bracket to the front of the chassis.**

**F. Main chassis rails** constructed of **round steel or brass wire** maybe ground or sanded **flat on the bottom**, but **no more than 20%** of the **rail diameter** may be **removed**.

**G. Pieces of steel used for guide tongues** are limited to a **maximum 1.00" (25.4mm)** total **width** and **1.50" (38.1mm)** total **length**. Steel tongues cut from a flexi or wing car chassis are not considered "commercial guide tongues" and are not allowed

**H. Floating pin tubes inside another tube are allowed.**

**I. Tape is not allowed on the bottom of the chassis at any point, except as a temporary repair during a race** (see also rule B6C).

**4. Hinged Movements:**

**A. Other than a drop arm, all hinged movements must be oriented in only one direction** on any individual chassis.

**B. A chassis may have transverse hinges** (examples: Iso-fulcrum hinges and plumber hinges) **OR it may have longitudinal hinges** (example: side pan hinges) but a **chassis may not have both types**.

**C. The total number of individual hinges is not restricted.**

**D. Centre line hinges are NOT allowed.**

**E. NO hinged front wheel movements** are allowed (i.e. no "L" arms).

**F. 'Rattle Pan' designs are permitted.**

**Any such design must consist of only two parts:**

**The 'Central Chassis', onto which the rear axle U bracket, the motor, the front axle and the guide must be mounted, and the 'Rattle Pan' on to which the body must be mounted. Other than a Drop Arm no hinged movements are allowed for this type of chassis.**

**5. Guide:**

**A. A single guide flag only is allowed.**

**B. The guide must be centred on the longitudinal axis of the chassis.** (i.e. no sideways "free float" or offset).

**C. The guide blade must be no larger than 0.086" (2.20mm) wide and 1.060" (27.18mm) long.**

**6. Tape/Lead:**

**A. Lead Weight may only be added to the top side of a chassis and must be securely attached.**

- B. Strapping or other tape to control or restrict movements is allowed but may only be affixed to the top side of the chassis.**
- C. Taping a damaged body to a pan to finish a heat is permitted but the body must be repaired, and the tape removed, before the start of the competitor's next heat.**
- D. Only Clear Sellotape may be applied to the Bottom of the Chassis to prevent Tarnishing of Brass. This must not modify the movement of any chassis component**
- 7. Centre line Torsion Bars will only be legal if they are solidly and visibly soldered at both ends either to pockets in the main chassis components or if soldered into tubes at either or both ends have a "free wire" distance of 4mm minimum between the tubes, additionally the tubes to be slotted crosswise and soldered, to openly display to scrutineers that it is a Torsion Bar and not a pivot.**

### C. Motor.

- 1. Eligible Motors:**
  - A. All cars must be powered by one of the following motors:  
Falcon 7: TSR D3: Slick 7 Mini Brute: JK Hawk 7: JK Hawk Retro: Trinity Evil 9: Fast Ones Demon.**
- 2. Modifications:**
  - A. The Armature Shaft may be shortened to clear the crown gear boss.**
  - B. All motors must remain unopened and unmodified in any other way.**

### D. Body.

- 1. Body Type:**
  - A. Any vac' formed (Lexan, PETG etc) 1/24<sup>th</sup> scale replica of a real Formula 1 Car, built and raced before the end of 1969 and not included on the 'Banned Bodies' list (see regulation D4) can be used.**
  - B. No "flattened" or "aerodynamically-improved" bodies are allowed.**  
(i.e. no moulded-in spoilers, wings, etc., that were not on the original full-size car or original mould). **Note:** moulded-in spoilers may not exceed the allowed specification governing the maximum width of the body.
  - C. Bodies may not be any less than .007" thick on the sides.** Any body found to be flimsy or a detriment to marshalling will need to be corrected by the racer. Tape or body armour may be used to achieve the required side thickness.
- 2. Body Finishing:**
  - A. Racers are encouraged to present cars with scale realism. Simple 2 tone fades, numbers drawn on with a pen and un-detailed interiors are not acceptable. It is however accepted that not all racers will wish to adopt strict scale colour schemes.**
  - B. Bodies must not be 'wedged' or 'raked' and must be mounted as level as possible.**
  - C. Maximum width across the front wings (where present) must not exceed 2.875" (73.03mm).**
  - D. A minimum 1/8" (1.59mm) high front grill/air intake (if present) must remain visible on the trimmed body.**
  - E. Bodies must be presentably-painted and carry at least three racing numbers, one on each side, and one on the front.**  
To further clarify this regulation, all bodies must be fully opaque on all sides except for those areas deemed to be windscreens or windows.  
The term 'opaque' means: Covered by paint, tape, or other suitable material, so that a finger is not visible through the paint, or other covering, under normal lighting.
  - F. Openings, such as air vents and intakes, must be cut out or painted to look realistic.**
  - G. Windscreens must remain transparent but may be tinted.**
  - H. All cars must have the cockpit opening fully cut out along the upper edge of the windscreen and cockpit sides.**

- I. **All bodies must carry a fully-moulded three-dimensional cockpit interior which includes a correctly positioned driver comprising of at least a helmet, shoulders, arms, hands and the upper part of a steering wheel.**
  - J. **Interiors must be presentably painted and realistically detailed.**
  - K. **Paper interiors are not permitted.**
  - L. **No part of the chassis, excluding the wheels, tyres and axles/axle tubes, but including the guide and all other running gear, may be seen when looking down on the car from above, either outside the body or through the cockpit opening or engine bay. (See also rule A15).**
3. ***Add on Spoilers and Air Control:***  
**NO add on spoilers or other air control devices are permitted.**
4. ***The Formula 1 'BANNED BODIES' List:***
- A. **Guidelines for acceptable bodies.**  
**The Body shape must be a reasonable 1/24<sup>th</sup> scale representation of the real car, within the logical limits of vacuum formed production, and not grossly lowered in profile. See rules D1A, D1B & D1C above.**
  - B. **BANNED BODIES**  
  
**There are currently no Bodies on this list.**
  - C. **The procedure for getting a body added to or removed from this list can be found in the SPORTING REGULATIONS.**