

# UKRRA

## UK Retro Racing Association

### Formula 1 Cars

#### Technical Regulations

##### A. 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.

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).

**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.**

**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.**

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 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.

**Important Note: We do not wish to get into approved body lists but if competitors push the boundaries too far this is what we will have to do.**

2. *Body Finishing:*

- A. Racers are encouraged to present cars with scale realism.
- 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.