



# Junior F2's Specifications

## DRIVER REQUIREMENTS

- The minimum age to compete is 11 years old and all drivers will end on their 16th birthday.
- ALL applicants are required to complete the Junior Competence Test, which includes a multiple choice written test and a basic driving skills test before a licence will be issued. This is chargeable at £50 and undertaken with the Barford Raceway promotion.
- New drivers will be deemed to be 'ROOKIE' drivers for up to their first THREE meetings and must start at the rear of the grid. They MUST display a black cross on a white background (minimum size 200mm square) on the rear of their car during this period.
- If a driver appears to be excessively slow or lacks in basic driving ability or confidence and seems to be a danger to themselves or other drivers/officials they may be asked to re-sit their test, or their licence may be suspended until proof of extra practice sessions have been undertaken before being allowed to race.

## DEFINITION

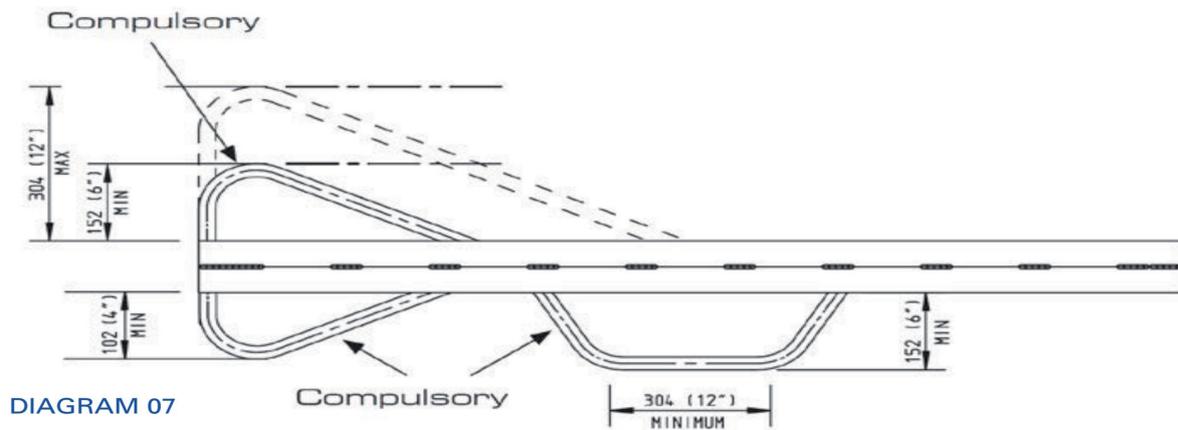
A Junior F2 stock car shall be front engined, open wheeled, single seat car with a steel space framed chassis. The centre line of the car will be determined as the centre of the two main chassis rails (when viewed from above) and the engine, gear box, seat, and rear axle will be fitted along the centre line of the car within the tolerances of 1 inch. Minimum weight is 650kg and the maximum weight is 750kg. Cars will be weighed in race trim but without the driver.

## THE CAR

All cars must have a steel chassis of welded construction, the chassis rails must be constructed of RHS with a minimum wall thickness of 3mm. They must be of a minimum size of 40mm x 40mm or a maximum of 70mm x 70mm. The chassis shall have an integral 6 pillar roll cage welded to the main rails, consisting of 2 longitudinal roll bars, above the height of the drivers head joined together by two cross bars, one at the front of the roof and one at the rear of the roof above the height of the drivers head. A further two cross bars must be welded to, and connecting the longitudinal roll bars, one at the front to also mount/support the steering column and one at the rear, both at the same height as the side bars, approximately elbow height. This makes a four point roll cage. In addition, a fifth and sixth bar must be welded between the longitudinal bars and the chassis rails approximately in line with the seat and must measure a minimum of 750mm at the driver's seat/shoulder position. These bars must not rely on any other component as part of their construction. This makes the six point roll cage and this structure shall be constructed of 30 x 30mm RHS or 30mm round tube minimum of 3mm wall thickness. In addition, a minimum of one vertical bar the same size and gauge as the main roll cage, must be welded between the rearmost rollcage top bar and the rear rollcage cross bar (the rear window aperture) to stop a bumper contacting the drivers head. Two vertical bars or two bars forming a cross will be acceptable if the driver feels this is safer. The remainder of the roll cage must be constructed of 25mm x 25mm RHS or 25mm round tube minimum, 2.5mm wall thickness, and must consist of side bars that must be welded to the roll cage pillars, at approximately elbow height and running between the front and 5th/6th pillars and continue from these pillars to the rear pillars. These bars must measure a minimum of 750mm wide at the driver's seat and must be joined to the main chassis rail by 2 vertical tubes of 25mm x 2.5mm minimum welded at both ends between the chassis and side bars, equally spaced between the front and the front 5th/6th pillars. The steering wheel must be well inside the front roll cage pillars, and there must be a 100mm (4") difference between the driver's legs and the steering support cross member when seated in the driving position. A sheet of steel plate no less than 3mm thick must be welded continuously to the top of the roll cage on all 4 sides. The plate must measure a minimum of 500mm long x 400mm wide. The roll cage must be constructed so that the drivers head and body remains within the confines of the cage at all times. When the driver is strapped and wearing a helmet there must be AT LEAST 1" clearance between the top of the helmet and the roof plate.

## **BUMPERS AND ARMOURING**

**Front and rear bumpers** must be steel and have a flat surface of 100mm deep and be 30mm thick maximum with both the bumpers permitted to extend out past the tyre. Front and rear bumpers must measure between 400mm and 450mm (15 ¾ inches and 17 ¾ inches) from the ground, at the centre of the car, without the driver. Bolt on bumpers must have a secondary securing chain (2 front and 2 rear) Front bumper hoops / under run bars must follow the pattern in diagram 07.



**Front bumpers** must incorporate a 'crumple zone' between the main chassis and bumper to eliminate the bumper being mounted straight onto the chassis main rails.

**Side rails** must extend around the rear wheels, joining the rear bumper. The side rails must not extend more than height of the wheel rim. The wheel guards must be securely fitted and be capable of sustaining heavy impact. The side rails must measure between 400mm and 450mm (15 ¾ inches and 17 ¾ inches) from the ground, without the driver.

## **SAFETY HARNESS**

The safety harness **MUST** consist of two separate shoulder straps, two separate lap straps, and an "anti-submarine" crotch strap (sometimes referred to as a sub-strap). The safety harness **MUST** be of either a 5-point or 6-point design. The safety harness **MUST** be anchored to the car's chassis by one of the following methods:

- Bolted to an integral part of the chassis using bolts of at least 8mm diameter high-tensile steel.
- Attached to bolt-on or weld-on purpose-made ringed harness eyelets using the harness manufacturer's original components.
- Securely buckled around integral roll-cage or chassis crossmembers using the harness manufacturer's original components. Any such cross-member(s) **MUST** be welded to other fixed chassis/roll-cage bars at both ends such that the safety harness cannot become detached, and **MUST** conform to the **MINIMUM** roll-cage material specifications.

## **RESTRICTOR**

ALL cars will be fitted with a restrictor, we are still working on restrictor sizes and the best option available. The restrictor **MUST** be fitted to the car at **ALL** times, **NO** tampering with the restrictor, **ANYONE** caught without a restrictor or to have tampered with it, will face an automatic ban from the Formula. **NO EXCUSES.**

## **SPECIFICATION OF FORD PINTO 2 LITRE OR FORD 2 LITRE ZETEC ENGINE**

A Ford 2 litre SOHC NE type engine or a Ford 2 litre Zetec engine must be used.

## **PINTO 2LITRE ENGINE**

All parts appertaining to the engine must be standard Ford 2ltr SOHC items fitted as fitted to the original engine type and production engine tolerances are allowed. The removal or addition of any material to combustion chamber or ports is not allowed unless specified below. The engine may be painted inside and out except in the aforementioned areas and internal painting does not change the surface from matt to smooth.

**Blocks:** Blocks maybe over bored to 1.5mm or sleeved back to 90.84mm and rebored back to 1.5mm oversized. Main bearing houses may line bored. Blocks may be skimmed but pistons may not protrude above the face of the block at TDC.

**Cranks:** A standard crank shaft must be used. Spot machining to achieve balance is permitted. Tough riding, shot peening and shot blasting is permitted but polishing is not permitted. Crank shaft minimum weight is 28lbs (12.7kg). It is not permitted to alter the number of bearings or fit bearings of less than minimum width. Oversized and undersized bearings of standard or heavy duty material are permitted. Cross drilled crank shafts are not permitted.

**Conrods:** Spot machining is permitted to achieve balancing using the pad on the big end cap only, but the body weight on the small end may be removed, and high tensile bolts may be fitted. Tough riding, shot blasting and shot peening is permitted but polishing is not permitted.

**Pistons:** Pistons must be of any Ford production type (not power maxed or forged) and unmodified except for balancing as detailed. All 3 ring must be fitted and be of standard type. To achieve balance, material may be removed from the inner surface at any location. To allow the refacing of the cylinder blocks, pistons crowns maybe machined and at least one piston must remain its original manufacturer's markings.

**Cylinder Heads:** The head face may be skimmed. Ports and chambers must be of original cast as by Ford. No fettling is permitted except in the areas between the valve seat and the valve guide. The ports must have original casting 20mm in on the exhaust ports and the inlet ports. It is permitted to use 3 angle valve seats and valve seat inserts may be used to repair damaged heads, but these must be accompany the exact position of the original seats. No additional metals or materials to the ports or chambers is permitted. Valves must be of standard type with head diameters IN 42mm +/- 0.2mm EX36mm +/- 0.2mm, and no lightening is permitted. Valve guides may be replaced but must occupy their normal position. Only 8 valve springs per engine are permitted, spring seats maybe machined and shims maybe used to achieve correct fitted length. Steel valve spring caps may be used. 2 camshaft centre main bearing caps maybe strapped.

**Camshafts:** Camshafts profile is free providing no other part of the engine have to be machined to allow fitting. Ford pattern cam followers of any manufacturer of the slipper type, made of steel or iron are permitted, including those produced with hardened inserts. No roller or alloy followers are permitted. Standard camshafts bearings maybe used but centre drilling is allowed to improve lubrication. A Vernier timing wheel is permitted.

**Gaskets:** Any standard non competition head gasket maybe used.

**Carburettor:** Only the standard Webber 32/36 DGV or DGVA carburettor maybe used with a maximum of 26mm and 27mm size chokes. No polishing or porting is allowed.

**Inlet Manifolds:** Inlet manifolds must be of standard with no matching or porting. Exhaust: Exhaust manifold systems are free but silencers are compulsory.

**Fly Wheels:** Fly wheel and clutch must be standard 2ltr components, but fly wheels maybe machined down to a total minimum weight of 12.31kg including cover, drive plate and all mounting bolts.

### **ZETEC 2 LITRE ENGINE**

The Ford ZeTec 2 litre engine may be used, but must be the same standard configuration / tolerances as the production engine as supplied by Ford for use in a standard road car. The only exceptions are the specialist parts which allow the engine to be used in a Stock Car. The same Carburettor as outlined in the Pinto regulations must be used. It is stressed that standard Ford road cams must be used, cam timing MUST be standard. Engine checks will be carried out at unannounced events

### **AXLES, WHEELS, TYRES AND TRANSMISSIONS**

The car shall have 4 wheels. Steel or alloy 13" wheels maybe used up to a maximum of 6" wide fronts and a maximum of 8" wide on the rear. The ONLY tyres permitted is DMACK 185/70/r13 & 195 GRABBER PATTERN TYRE. NO tyre buffing aloud. Ford ONLY gearboxes aloud, Tran x or Standard, NO ELITE GEARBOXES.

### **REAR AXLE**

Rear wheel drive only is permitted with open differential ONLY, the ONLY differential ratio permitted is 3.89. Both halfshafts must be of equal length.

### **ANTI ROLL BARS**

Anti roll bars may be used

### **BRAKING SYSTEM**

ALL 4 wheels must be have brakes fitted and ALL must be in full working order.

### **WINDSCREEN**

Windscreen mesh must be fitted with a minimum mess of 40mm square x 2.4mm thickness.

## **DRIVERS SEAT**

A 3mm steel plate must be fitted to the bottom of the seat covering the full width and length and a prop shaft loop must be fitted minimum of 25mm x 3mm flat steel. The driver's seat may be of metal construction or fibreglass/Kevlar (rally type/spec)

## **HEAD REST**

A head rest must be fitted behind the driver's seat with a steel plate minimum thickness of 3mm

## **HEAD RESTRAINTS**

A head restraint/window net must be fitted to the right side of the cab to stop the drivers head making contact with the roll cage in the event of a side impact.

## **FUEL TANKS**

Fuel tanks must be of steel or aluminium construction with a minimum of 2mm thickness and no more than 3 gallon capacity. If tank is fitted behind the driver's seat it must have a full firewall in place. If the tank is mounted outside of the cab, a steel plate not less than 3mm thick must be fitted securely underneath it.

## **CAR WEIGHT**

Car must weigh minimum of 650kg to a maximum of 750kg without the driver at any one time. Cars must be presented to the scales with enough fuel to allow the car to be driven from the scales & for a locked diff check, if required.

## **FLOOR**

Steel floor and ankle side plates made from 3 mm steel plates must be securely welded from the fire wall to the front of the driver's seat.

## **ROOF WINGS & GRADE COLOURS**

Roof wings are optional and if fitted must be fitted securely. The forward mountings, if from the windscreen pillars, must be mounted on the outside of the pillars so as to minimise the risk of the mountings entering the cab in the event of a roll over. The roof wing must be painted completely in the current grading colour. Any sign writing on top of the grading colour may be as you desire but must not interfere with official racing numbers. In the case of cars with no roof wing, the car roof must be painted in the current grading colour down to the waist line of the car.

## **NUMBERING**

The driver's registered number must be painted on both sides of the roof wing. They must be neatly shown in black, a minimum of 12" high and 2" wide (larger if possible) on a white background. If a roof wing is not fitted, a number board must be fitted, large enough to accommodate the correct size numbers, again, black numbers on a white roof board. It would be helpful to the lap scorers if the numbers/white background be painted in matt so as not to reflect under the track lights and to be kept clean and visible prior to each race. To assist lap scoring, and cars lining up for re starts, the driver's number should appear on the rear of the car, recommended inside the rear window aperture, to keep it clean. It should be black on white, minimum size 9" high and 1" thick.

## **SAFETY WEAR**

Overalls, gloves must be worn at all times and must all be fireproof and clearly marked so. Shatterproof goggles/ visors must be worn. A fireproof balaclava must be worn when racing. FIRE PROOF UNDERWEAR AND FIREPROOF RACE BOOTS IS ENTIRELY AT THE DRIVERS DISCRETION.

## **RACE RECEIVERS**

ALL Junior F2s will use a race receiver in which the race director can talk directly to the drivers at all times. He/She will start the race by calling for a rolling lap with instructions on spacing and speed. The instruction to start racing is GREEN GREEN GO GO. The instruction to stop racing (either at the end of the race or due to a dangerous incident on track) is RED RED RED STOP STOP STOP. ALL drivers MUST come to a stop as quickly and safely as possible, and await instructions from either race control or track officials on track and care must be taken. Continuing at high speed will be dealt with robustly by officials. If you are the cause of the stoppage you must retire from the race, even if you are uninjured and the car is fit to continue. If you win a race you must start at the rear of YOUR GRADE for the remainder of the meeting.





