



## 2020 Specifications, Rules & Regulations 2.0 Litre Hot Rods

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## 1. DEFINITION

Racing is in a clockwise direction. The object is to complete the specified number of laps in the shortest time. Baulking, pushing, or spinning another car is not permitted. The circuit is clearly marked and you are not permitted to allow your wheels to pass over the demarcation line.

## 2. TYPE OF CAR



**A.** Any four-seater, front-engined, saloon or hatchback, constructed of steel, the overall length must not exceed 3988mm (157") and the overall width must not exceed 1702mm (67") when ready to race. Consideration will be given to any modern vehicle which falls outside these specified measurements in its original form, but can comply when prepared for racing, as follows:

**Length:** By reducing the depth of either the front or rear bumper.

**Width:** On many cars, the wheel arches are the widest part of the original vehicle, and once the car has been lowered, and the wings reduced to accept the permitted wheels and tyres, the vehicle may be able to conform to the maximum width permitted. If this is the case, permission may be granted. Details should be submitted to Spedeworth for approval.

**B.** Coupes are not permitted (except as authorised by Spedeworth — drivers wishing to use a Coupe must apply to our Head Office).

**NB:** The Vauxhall Tigra, new Clio with plastic front wings (see G below), Peugeot 206cc and Ford Puma have been authorised for use, but must conform to 2LHR.2 A. above).

**C.** Bodies must remain standard, with the exception of bonnet and boot lids/tailgates, which **may** be replaced with fibre-glass only. The passenger door may be made from steel, fibre-glass, or Kevlar. The driver's side door may be either steel or Kevlar only. Panels must be replicas of the original, if replaced. The full silhouette of both front doors must be visible, i.e. the doors must not be shortened, or door sill must not protrude into door silhouette. The rear window aperture on a Vauxhall Tigra (which is viewed from the side elevation only) may be filled with metal or fibre-glass.

**D.** Independent rear wheel drive is **not** permitted.

**E.** If a body shell originally had a top and bottom wishbone front suspension, it can be changed to MacPherson Strut type suspension and vice versa.

**F.** All cars **must** be rear wheel drive. Front wheel drive cars may be converted to rear wheel drive within these Rules.

**G.** The Renault Clio produced with plastic front wings may duplicate fibre glass replicas which may incorporate the wheel arch.

**H.** Body shells must retain their original silhouette.

**I.** When reference is made to metal, this means aluminium may be used, but steel may not.

### 3. BODYWORK / SPACE FRAME

#### Front & Rear Wheel Drive Shells

a. Non-spaceframe cars; may be modified to accept any suspension configuration and you may build sub frames front or rear. Material (minimum thickness 2.00mm) cross bracing may be of any size and gauge. No part of the front or rear sub-frame can be less than 102mm (4") from the contact area of the bumper. All other aspects of these rules must be implemented.

b. A full spaceframe is permitted and must comply with all aspects of these rules (including roll cage specification). The minimum required front tubes will be 2 x 38 x 2.0mm minimum either side of the engine block, four in total these must continue forward to the minimum of the axle centre line with one cross member 1 x 38 x 2.0mm minimum, joining two of the front tubes,. It will be the same for the rear with 2 x 38 x 1.5mm min gauge tubes, four in total, plus one cross member. 1 x 38 x 1.5mm min joining two of the rear tubes 10" past the axle centre line. If the spaceframe has two bars from the top of the rear roll hoop going to a minimum of 10" past the axle centre line,, these will be classed as two of the four tubes required.

**IMPORTANT NOTE:** The January 2006 Spaceframe rule; 'any car with less than 2.0mm front spaceframe tube will have until January 2006 to rectify their spaceframe' has been amended and now reads a minimum of 1.5mm.

#### Seat Position

From the 1<sup>st</sup> January 2013 a seat position from rear axle measurement will be enforced. This is to be minimum of 14" or 355.6mm from the centre line of the axle to the most rearward part of the seat.

#### Front Wings

Front wings may be fixed to tubing when inner wings are removed.

#### Bulkhead/Firewall

May be modified to allow re-position of engine, and allow access of turret and front subframe/spaceframe supports from roll cage, exhaust, and ancillaries, but must be fabricated in steel to re-establish a complete firewall.

#### Rear Floor/Boot

a. Rear floor and rear chassis rails, and rear wheel arches, may be removed from the centre pillar, or B-Pillars to the rear panel. When rear floor is removed (in part or whole), cars must be fitted with a fully enclosed and effective rear firewall. The firewall must be constructed of metal and must not protrude into rear window aperture.

b. Covering the underside of vehicle with flooring/under-trays is not permitted.

#### Floor/Sump Guard

a. May be modified to accept gearbox and prop-shaft tunnels, which must be fabricated in mild steel. A minimum of 25mm of the original floor, connected to the inner sill between the A & B pillars, must be left on both sides of the car, and the floor must be replaced with steel. Complete drivers side of the floor from front to back must be a minimum of 1.5mm thick .The rebate lip which attaches the floor to the sill may be flattened or removed. The floor must be complete, and must not be raised or lowered by more than 25mm from its original position, which may be taken from the highest point between the A & B pillars, but do not include cross-member or seat supports.

b. Any type of flooring/under-tray, or aerodynamic aid, from the front panel to the bulkhead is not permitted. However, a sump guard may be fitted, but must not overlap the width and length of the sump by more than 76mm (3"), and must be aluminium, no thicker than 5mm.

#### Front Suspension

Any suspension configuration is permitted

a. Anti-roll bars and mounting are free.

b. With wheels and tyres, the front track must not exceed 1651mm (65"); this will be measured at the bottom of wheel rim, aluminium wheel spacers are permitted. ***The only exception on track width will be on certain later bodies and permission must be obtain from Spedeworth Motorsports prior to the car been allowed to race.***

c. Alloy hubs are optional.

d. ***Wheel studs must be level with the wheel nut or protruding slightly through. It will be the scrutineers' discretion as to whether the studs are protruding through too far and you may be asked to cut them flush.***

#### Steering

Cars fitted with a steering box as standard may convert to rack and pinion. All cars must use a standard production steering rack casing (specials are not permitted). Interchange of gears is permitted within the standard casing, which may be modified, or you may use a standard rack with a quickener fitted in the column.

#### Rear Suspension

a. A Ford Escort axle casing must be used with original ford escort shafts. Wheels and tyres must not have a rear track wider than 1651mm (65").

You are permitted to re-tube a bent axle casing with the minimum of 2.5" O D tube with a minimum wall thickness of 2.5mm

Any 2 piece halfshaft is now permitted for use.

- b. Axle measurement, without shafts, must not exceed 1232mm (48.5"), with shafts 1359mm (53.5"). **The only exception on track width will be on certain later bodies and permission must be obtained from Spedeworth Motorsports prior to the car been allowed to race.**
- c. Anti-roll bar and mountings are free.
- d. Any configuration of suspension links is permitted.
- e. Aluminium wheel spacers are permitted.
- f. It is not permitted to fit any type of adaptor to the axle or shafts, with the exception of aluminium wheel spacers.
- g. The Bird Cage (or similar) system that allows the axle casing to rotate in its mounting brackets is not permitted. All axle mountings must be welded or bolted.
- h. **Wheel studs must be level with the wheel nut or protruding slightly through. It will be the scrutineers' discretion as to whether the studs are protruding through too far and you may be asked to cut them flush.**

#### **Suspension Joint (Front & Rear)**

- a. May be rubber-bushed or rose-jointed.
- b. All rod ends/rose joints must be steel.
- c. All suspension arms and link arms must be steel.
- d. Alloy hubs are optional.

#### **Shock Absorbers (Front & Rear)**

- a) A total of four shock absorbers may be used, one per corner.
- b) **A Single Adjustable type may be used.**
- c) Adjustable spring platform may be fitted.
- d) Any readily available shock absorber with a purchase price not exceeding £125 + VAT may be used. There will be, however, provision for any licensed 2 Litre Hot Rod Driver to purchase the shock absorbers from a fellow competitor's car for a price of £162.75 including VAT per unit.
- e) Shock absorbers must be as from the manufacturer, ie; Gaz shocker must remain with Gaz components incl oil, No interchanging of parts or oil. **Shock absorbers may be re-valved but only by the original manufacturer.**
- f) Quantum & Koni shock absorbers/inserts will be banned from January 1<sup>st</sup> 2013 as they are now outside of the price range. This date has been chosen to give drivers a 12 month run-out period.
- g) Shock absorbers may be re-valved but only by the original manufacturer.

#### **Springs**

Competition springs may be used.

#### **Wheelbase**

Wheelbase must remain standard,  $\pm 50$ mm offside and nearside. **NB:** There is no wheelbase tolerance taken into account on engine position so you will need to check this.

#### **Bodywork**

**All body panels must be obtained from the constructor who has been sanctioned the rights by Spedeworth Motorsports (constructors to be listed in due course) to the relevant model that have been produced from an inspected plug and passed by the Spedeworth Motorsports Group. All NEW panels will be micro chipped for identification and the purchaser gives the right to any constructor to check the validity at any time. Any existing panels can be micro chipped if checked and deemed legal by the relevant constructor. Any panels not chipped, or are not eligible to be chipped, will be deemed a copy and therefore illegal. There will be a run-off period of the 2019 season for all panels to be chipped by the 1<sup>st</sup> January 2020. The manufacturer of the panels will be updated through the year via the Spedeworth Motorsport website and will be added to the rule book when updated.**

To be kept tidy and of a professional appearance at all times. No armouring or reinforcing. No sharp or jagged edges. The removal of inner pillars and inner roof skins from the body waist-line up is not permitted. **From 1<sup>st</sup> January 2013** on the Corsa C & Peugeot 206 car ( not cc) & fiesta mk6 drivers are allowed to remove inner paneling above the waist line, but on any other vehicle permission must be obtained from Spedeworth before doing so. All internal/replacement panels, i.e. inner wings, floor, etc., must be no thicker than the original manufacturer's item. These must have a 50mm diameter hole cut into them for Scrutineering purposes. External panels, i.e. wings, spats, front and rear panels, must not exceed 1mm thick mild steel – side skirts must not exceed 1.6mm.

#### **Front / Rear Bumper**

- a. Original plastic bumpers may be used.
- b. Original steel bumpers must be replaced.
- c. A fibre-glass/Kevlar replica must be used (if not available for your vehicle, you may use one from other available models). The bumper should be constructed of two layers of fibre-glass and one layer of Kevlar (minimum thickness 5mm).
- d. Splitters or bibs may be incorporated into the front bumper mould, and must not be a detachable item.
- e. The splitter or bib must not protrude forward of the contact surface of the bumper.
- f. Bumpers may be made in sections, if required, to save replacement of the complete unit if damaged.

**g.** The bumper must be mounted in its original position. For those vehicles that have to use a non-original bumper, it must be mounted as close as possible to the original position, and will be at the Scrutineer's discretion.

### **Bumper Fixings**

**a.** Additional means of securing the bumper is permitted, but armouring or reinforcing is not.

**b.** All bumper fixings to chassis must be via separate brackets or sleeved tubes, and must not be welded or bolted directly to chassis.

**c.** Any securing bolts on the contact area of the bumper must have rounded heads. Please try and avoid fixing in this area, if possible.

**NB:** ALL CARS: Bumpers may have holes or slots in them, between the head lamp apertures, for cooling purposes only.

### **Grill**

All cars must if fitted with a grill as standard have either the standard grill fitted or a replica panel incorporating the headlights made of fiberglass which must remain the same dimensions so the vehicle silhouette is unchanged I.E if you were to remove the panel then the standard grill and headlights would fit in the aperture left

### **Light Apertures**

Light apertures front & rear must be covered ,either with fiberglass panel, aluminium cover or steel.

If steel is used no thicker than 1.0mm . NO MESH OR HOLES

If the rear lights are fitted in the roof pillars as standard they may remain and not be blanked off.

### **Bonnet**

**a.** A bulge or carburettor /air filter scoop is permitted but any opening of the scoop must be forward of the engine block.

**b.** No other holes or vents in bonnet except bonnets that rap down the front of car for cooling purposes. A scrutineer's discretion is final.

**c.** Bonnet may be constructed of fibre-glass.

**d.** No mechanical components should be visible from the rear of bonnet, and the rear of bonnet may be extended to incorporate the windscreen shuttle panel.

**e.** Rain deflectors are allowed on wet meetings.

### **Wheel Arches/Spats**

Front and Rear:

**a.** Steel wheel arches, or spats, may be fitted and must be symmetrical. If permission granted; any new vehicle with plastic front wings may make fibre-glass replicas, incorporating the wheel arches which must be symmetrical.

**b.** Any box or tube & any other bar used for strengthening must finish at least 1" or 25mm from the outside edge of the arch/spats so this does not pierce through and cause punctures.

**c.** The top of the tyres must be covered by body or spat, when viewed vertically, to prevent cars riding over each other when racing.

**d.** The area from the rear bumper to wheel arch, or spat, may be filled-in, and must have smooth and rounded edges.

### **Side Skirts**

**a.** Side skirts, fitted between front and rear wheel arches, are compulsory if spats or arches are fitted; they must be a maximum of 1mm thickness mild steel, and may have gussets at either end. The original outer sill may be removed, but do not remove the inner sill which retains the 25mm (1") of original floor. Side skirts must be no thicker than 1.6mm.

**b.** For the purpose of Scrutineering, there must be a visible hole of 25mm in diameter on the top side of each skirt.

**c.** Side skirts may have holes in them.

**d.** Any box or tube & any other bar used for strengthening must finish at least 1" or 25mm from the outside edge of the side skirt so this does not pierce through and cause punctures.

### **General**

Unless fitted as standard to your vehicle, the following parts, materials, methods, or practices, must not be used:

**a.** Alloy or magnesium brake calipers.

**b.** Magnesium hubs.

**c.** Alloy or magnesium differential casing (including slipper casing).

**d.** Alloy or magnesium gear box centre casings.

**e.** Alloy or magnesium suspension top mounts.

**f.** Stainless steel panels.

**g.** Kevlar parts. Exceptions: seat, bumpers, and driver's door.

**h.** Any type of moly-chrome steel.

**i.** T45 steel.

**j.** Tyre softener.

**k.** Tyre buffing.

**l.** Tyre cutting.

**m.** Turbo charging and fuel injection are not permitted.

## 4. ENGINE

The engine must be any Ford 2.0 Litre Pinto SOHC engine or **The Ford Zetec Black Top 2.0 engine** meeting the following specifications: **For Zetec rules See Back Pages**

- a. The 2.0 Litre Pinto engine may be used, with a nominal bore of 90.84mm and a stroke of 77mm, with a maximum re-bore of 1.5mm oversize.
- b. Sleeving back to 90.84mm is permitted, and over-boring of sleeves 1.5mm is permitted.
- c. Cylinder blocks may be in-line bored.
- d. Top of cylinder block may be surfaced, but pistons must not protrude above top of block and all four must have their original marking on the crown.
- e. It is permitted to secure engine core plugs with a secondary fixing.
- f. No other modification permitted.

–The outside surface of the engine may be painted

### Crankshaft

- a. A standard crankshaft must be used.
- b. Tufriiding and nitriding is permitted, but polishing is not permitted.
- c. Crankshaft minimum weight is 12.7kg. No forged steel cranks.
- d. It is not permitted to alter the number of bearings, or fit bearings of less than minimum width. Oversize bearings of standard or heavy duty material are permitted.
- e. Cross-drilled crankshafts are not permitted but the oil way at each journal may be relieved.

### Engine Balancing

- a. CRANKSHAFT—spot machining only.
  - b. CON RODS—spot machining only on the counter weight balance pad area at the big and small end. One con rod must remain original and untouched. No forged steel rods. Con rod bolts may be changed but con rods must not be drilled or modified to accept them;
  - c. PISTONS—Spot machining only and one piston must be original and untouched. All four pistons must have original marking on crown. Flywheel and clutch assembly may be balanced.
- NOTE:** Spot machining means either hand grind, drill or machine.

### Pistons

- a. Standard pistons or standard replacement pistons, i.e. (KS Karl Schmidt, Hepolite, Wellworthy AE, Mahle).
- b. Pistons or gudgeon pins must not be modified, and no forged pistons are allowed.
- c. Pistons must not protrude above block.
- d. The pistons must not be skimmed, and markings must remain on the pistons for identification purposes.
- e. Lightening and stress relieving is not allowed.
- f. Any make of piston ring may be used, providing there is no machining of the pistons or rings other than Gapping.

### Lubrication System

- a. Dry and semi-dry systems are not permitted.
- b. The oil filter must have a secondary fixing, and occupy it's original position.
- c. An oil cooler may be fitted in the engine compartment, using a sandwich plate between the oil filter and block.
- d. Oil galleries in the block and head must remain unmodified.
- e. Sumps may be modified to hold more or less oil, and may be baffled to prevent surge.
- f. Group 1 and aluminium sumps are permitted.
- g. The oil pick up must terminate within the confines of the sump.
- h. High pressure oil pumps are allowed, but not high capacity.
- i. The only modification allowed to the rocker cover is for breathing purposes only.

### Gaskets

- a. Only standard Ford or Payen 2.0 litre gaskets may be used, including the standard American version, unmodified, with no other sealing aids.
- b. Competition gaskets are not permitted on any part of the engine or ancillaries.

### Camshaft

- a. Camshaft type is free.
- b. The use of Vernier cam timing wheel is permitted.
- c. Standard length 2-litre cam belts must be used, along with the standard 2-litre cam belt tensioner, unmodified.
- d. Centre drilled camshafts are allowed, the oil spray bar may be removed, and a splash shield may be fitted.
- e. Roller cam bearings are not permitted.
- f. Rocker arms are free, but the use of Roller Rocker is not permitted.
- g. Rockers may have the ends nipped.
- h. Heavy duty rocker arm retaining springs are permitted.

### Cylinder Head

- a. Any 2-litre casting allowed.
- b. Cylinder head must not be modified, and material must not be added or removed from the ports or combustion chamber.
- c. Valve guides, if fitted, must occupy their original position, and must be standard Ford replacement type, not bronze or competition type. The use of the thin wall bronze inserts in existing guides is permitted.

- d. Valves must be standard, and of standard Ford length (110.65mm-111.65mm inlet, and 110.10mm-112.05mm exhaust). The valve head size must be 42mm inlet and 36mm exhaust.
- e. Three-angle valve seats are permitted. The measurements of the three angle valve seats are as follows; Angle 1; Combustion chamber 30° Angle 2; Valve seat 45° Angle 3; Port 60—65° with valve seat width free.
- f. The head gasket face may be skimmed.
- g. Any single or double valve springs may be used, and the head may be modified to allow them to fit including shimming.
- h. You may use standard Ford Pinto or steel spring tops, and extended length ball studs are permitted.
- i. Heavy duty rocker arm retaining springs are permitted. NB: On standard & Replacement inlet valves only, where the back of the valve meets the valve seat, there may be a slight lip, which may be ground away at a 30° angle, to a maximum width of 2.5mm.
- j. The centre camshaft cap maybe re-enforced.

### **Modifications**

- a. Water pump and crankshaft pulley may be fitted with power grip-type drive belts and pulleys. Replacement of standard crankshaft pulley with machined manufactured pulley is permitted. The circumference of any replacement crankshaft pulley must remove at least a minimum of 363mm, this equates to a minimum diameter of at least 115.55mm. The weight of any replacement crankshaft pulley must measure at least a minimum of 600g.
- b. Manual fuel pumps may be replaced with electric type.
- c. An adapter may be fitted to run a tachometer.

### **Flywheels & Clutch**

- a. Any standard Pinto Engine flywheel, which may be lightened, may be used.
- b. Clutches are free, but no competition types.
- c. Flywheels must be doweled to the crankshaft.
- d. Competition starter motor may be used

### **Distributors**

- a. The 2.0 Litre Pinto distributor (Motorcraft or Bosch), complete with points and condenser, or standard Ford 2.0 Litre Pinto electronic ignition system which uses a conventional coil.
- b. The mechanical or vacuum advance may be altered; the vacuum advance may also be removed.
- c. Only the following lumenition electronic ignition systems are permitted for use:
  - i) Ford Bosch fitting kit FK 221 with power module PMA50.
  - ii) Motorcraft fitting kit FK9 with fitting kit PMA50.

### **Engine Sealing (see SECTION 30)**

#### **Carburettor**

- a. Only the standard Weber 32/36 DGV/A carburettor may be used with a maximum sized chokes of 26mm and 27mm.
- b. No polishing or re-profiling is allowed.
- c. No modification to the carburettor body or original design. The interchanging of the carburetor top from other Weber models is not allowed.
- d. Gaskets must be original or replicas of original (i.e. no modified gaskets).
- e. A single original specification adapter/insulator block must be fitted between carburettor and inlet manifold, with two gaskets approximate total thickness 5mm I.E. as supplied with Gasket set.
- f. Main jets, primary and secondary jets, auxiliary venturi, and emulsion tubes may be replaced with a different size of the same part.
- g. Accelerator pump jets may be changed, but face downwards towards butterflies.
- h. Butterflies may be modified to open together, replacement spindles may be fitted with standard screws. Cold starting devices may be removed, with retaining lugs and subsequent holes blanked off.
- i. Air and fuel galleries may not be enlarged or modified; fuel may enter needle valve/float chamber from either side. Floats may not be modified or weighted, and must control the fuel flow.
- j. Needle valves may not be larger than 250, and not enlarged or modified.
- k. The power valve must be fitted in the base of the fuel bowl, but may be sealed off, and the diaphragm may be removed.
- l. No trumpets are allowed. The calibrated brass bush which controls the high speed enrichment, fitted on the secondary venturi side of the carburetor between the top and base of the carburettor, may be sealed off or enlarged, but must be fitted.
- m. A secondary fixing on the fuel feed-line is required. It is permitted to use a grub screw, or similar device, to fix the auxiliary venturi to the carburettor body.

#### **Inlet Manifold**

- a. Standard Pinto, and may not be faced to alter the angle of the manifold or the carburettor.
- b. No inlet port-matching from the carburettor flange face will be permitted, or from the manifold ports to the head.
- c. No material may be added to or removed from the gas flow area.
- d. Water circulation holes may be blanked-off.
- e. A stabiliser bar may be fitted to support the manifold.

## SPECIAL NOTE

All other parts appertaining to the engine, which are not mentioned above, must remain as standard manufacturer's items.

## 5. SAFETY EQUIPMENT

### 5.1 CRASH HELMET

Helmets must be of a minimum standard as directed by British Oval Racing Safety Executive (B.O.R.S.E). These are FIA8860-2004, FIA8860-2010, Snell SA2005, Snell SA2010, Snell SA2015, SFI Foundation 31.1A, SFI Foundation 31.2A. The E2205 European standard helmet may be used in Fibreglass, Carbon or Tri-Composite form only i.e. NO POLYCARBONATE helmets are allowed. It is important that the helmet fits the driver correctly. Shatterproof goggles/visors must be worn although tinted visors are not advisable. ~~Your helmet must display the current ORCi (ORC15) sticker.~~ All helmets MUST display **a new green "ORC20 Approved"** serial numbered helmet sticker, as per Illustration 01. Older **blue 2015, and** red 2010 stickers are NOT valid (Illustrations 02 **and** 03).



Illustration 01



Illustration 02



Illustration 03

***(Note: A programme of re-validation and issuing of the new green stickers will be undertaken by ORCi appointed officials during the 2020 season. This programme will take some time to implement, and therefore the blue ORC15 Approved sticker will remain temporarily accepted until the programme has been completed. Helmets to the SA2005 and FIA 8860-2004 standards must NOT be used/presented, as they are no longer permitted.)***

### 5.2 RACING OVERALLS

You must wear Fire retardant, clean, un-torn ~~and brightly coloured~~ Racing Overalls that are made of a fire retardant material and are clearly marked fireproof. Mechanics are also required to wear clean overalls and will not be permitted on to the track without them being on, when instructed to do so.

### 5.3 GLOVES

It is Mandatory to wear Fire retardant Gloves also clearly marked fireproof.

### 5.4 BALACLAVAS

It is Mandatory to wear Fire retardant Balaclavas clearly marked fireproof.

### 5.5 NECK BRACE

A Neck Brace is recommended, a spine support is also recommended.

### 5.6 WET WEATHER CLOTHING

Wet Weather clothing is also recommended and must be worn in addition to, and **not** instead of the racing overalls.

### 5.7 HEAD RESTRAINT NET/WINDOW NETS

You may fit a Head Restraint Net on the on the safety fence side of the race car only. A quick release window net must be fitted to the driver's door window aperture and must be of quick release/cloth type only. Net spacing must be 76mm x 76mm maximum.

### 5.8 1kg FIRE EXTINGUISHER

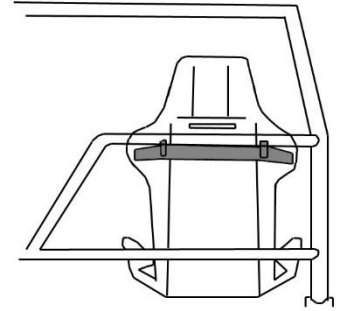
- A 1Kg Dry Powder Gauge Fire Extinguisher is highly recommended and if fitted, this should be in a tube with a spring top and should be within easy reach of the driver. Old type BCF (green) type extinguishers are not allowed. All tow vehicles, must carry a minimum of a 2kg fire extinguisher dry powder or gas, which must be within easy reach of the driver and mechanics at all times, especially when refueling.



## 5.9 COMPETITION STYLE DRIVERS SEAT WITH HEAD RESTRAINT

You must have a Competition type Driving Seat with a head restraint. The seat should occupy its original position where possible and be suitably supported at shoulder height and on both of the sides and back, with a suitable framework or seat stiffener's.

Additional wrap around seat support at shoulder height.



*If the seat sits behind the b/pillar hoop a secondary support to the cage must be added. An example of this is shown in the diagrams within this section of the document. If the modification goes to the floor it must be sat on 23cm square plate 3mm (min.) thick.*

*This new section must not be constructed in a way that a drivers helmet can make contact with it. Material od and thickness as rest of roll cage.*





#### 5.10 SAFETY HARNESS

The lap belt/straps and crotch straps should not pass over the sides of the seat, but through it, in order to wrap and hold the pelvic region over the greatest possible surface

It is mandatory to have a 5 point Safety harness with 3" shoulder straps, the lap & crotch straps can be either 2" or 3" in width.

All seatbelt connection points must be visible and no belts must pass through any firewall.

Following research made by leading safety harness manufacturers, information has been made available with regard to the best way to fit your safety harness; this will further ensure your safety. Please study the diagrams to ensure your safety harness is fitted correctly.

The lap belt crossing should be below the anterior-superior iliac spines (bony part of the hip). Under no circumstances should it be worn over the region of the abdomen.

Lap belt/straps **must terminate vertically downwards**, and not forwards or rearwards of the hip joint. Lap straps should terminate symmetrically about the wearer on either side of the seat, about 20" (500mm) apart. The distance between the seating surface and the anchorage point should be kept to a minimum to prevent submarining.

The location of the crotch strap mounting should be to the rear of the driver.

Fig.1 shows the location for the tail straps, which should be horizontal to 20° below horizontal, and as close to the shoulder as is practical for optimum restraint.

Only safety belts comprising of separate shoulder, lap, and sub-straps will be permitted. The sub-strap must be used at all times, and all belts must connect to the quick release buckle. The abdominal strap fixing point must be on the chassis, roll cage, or floor (for vehicles with no chassis), either side of the driver.

The shoulder straps must be supported at shoulder height. NASCAR type buckles must be fitted with lever on the **right** side of the driver. It is advisable to fit a secondary means of detent to prevent overall sleeves accidentally unhooking the buckle during racing. A small section of tube grip **elasticated** bandage, slid over the hooked buckle, serves the purpose.

Special attention must be paid to the condition of seat belt fixings once fitted. Information is available, from your Promotion, on the correct procedure to follow when fitting seat belts. *Remember - your life depends on them, and belts, once involved in a severe accident, should be discarded and replaced.*

Over the years, we have had many unnecessary injuries due to badly fitted seats. They frequently occur in Non-contact Formulas, when perhaps a driver believes it is more unlikely that he will be involved in a serious crash, and he also believes that, if he is involved in a collision, the impact on his car will be from the front. However, this is often not the case. It is therefore, imperative that you ensure your seat is really well supported, especially where the shoulder straps go through. You must also ensure that your seat cannot move sideways.

The safety of your seat will be judged by the Scrutineers and you will only be permitted to race when they are satisfied that you will be as safe as possible in any event.

## 6. PERSONAL SAFETY

Drivers are advised that under Health & Safety, they are responsible for their own and their Mechanic's actions. Promoters have had complaints made about Registered Drivers & Mechanics consuming large amounts of alcohol at meetings, which could effect their judgement or be detrimental to their health, when medical attention has to be administered by Paramedics, St Johns or Hospital Staff.

Should an incident occur that proves fatal on the raceway and you are involved, it is likely that the Police will want interview you. **If you drive, don't drink!** Scrutineers and Officials will report to the Steward, anybody they believe is under the influence of Drink or Drugs. Drivers whom it is thought are under the influence may be breathalysed.

**Drivers should line up on the grid with their engines switched off in the correct points order, unless told otherwise.**

### The Flags

This is to remind drivers of the flag signals as used by the Starting Marshall and Safety Marshalls on track.

- Waved Green Flag – Go, the race has started.
- Waved Red Flag – Stop racing slow down & stop.
- Chequered Flag – Race winner has crossed the line, continue to race until the Red Flag is shown.
- Held Yellow Flag – Beware, you are approaching a hazard on the track, continue to race.
- Waved Yellow – Slow down rolling lap speed, hold your position, and do not overtake any other cars.
- Waved Blue Flag – Shown to a driver who must hold his racing line. Driver must either hold a line on the inner part of the track or the outer part of the track, not weave between both.
- Blue & White Flag – Give up your track position, you have not taken notice of the Blue flags.
- White Flag with a Blue spot – Oil / debris on the track.
- Waved Black Flag - You are disqualified, pull off the track immediately.
- Black cross on a White board – You may have committed an infringement and may be penalised in the results.
- White Flag with a Red Cross – Technical Disqualification, leave the track immediately

## 7. ROLL CAGE

a. Alloy roll cages are not permitted.

b. A full roll cage; minimum material size and gauge of all tube as listed below is 32mm (3mm) or 38mm (2.5mm)OD; (which must support both A & B pillars), consisting of a minimum of:

- Two hoops, either running from front-to-rear or side-to-side.
- Two top hoop connecting bars.
- One rear hoop cross bar at shoulder height to mount seat support, or a seat brace hoop to mount seat support.
- One lower bar (recommended).
- One dash cross bar.
- Two driver's-side chicken bars (plus connecting bracing).

Drivers door bars must be two continuous bars constructed of cage material (38mm x2.5mm) or (32mm x 3mm) with a minimum of 2 connecting braces made of cage material also. All other bracing is free. Passenger side may either be the same as listed above or a cross formation, I E one continuous bar from hoop to front leg with two connecting bars forming a cross. This cross must go from waste of the vehicle to the bottom of the hoop so as to fill the door aperture.

c. All structural bars connecting to the cage inside the car must be steel, and terminate a minimum of 100mm (4") from the front and rear panel. Any part of the roll cage that may come into direct contact with the driver's body must be suitably padded. All joints must be welded over a minimum of 90% of the surface area of the joint. RAC Approved cages are permitted, with a minimum thickness of 2.5mm. It is important there are no large gaps between any part of the cage, and the body shell. Roll hoops and connecting bars must not be dropped from roof, and must support the A & B pillars. It is permitted to move the 'B' pillar hoop rearwards to protect Drivers Head. Please bear in mind the seat should occupy its' original position.

## 8. ENGINE POSITION

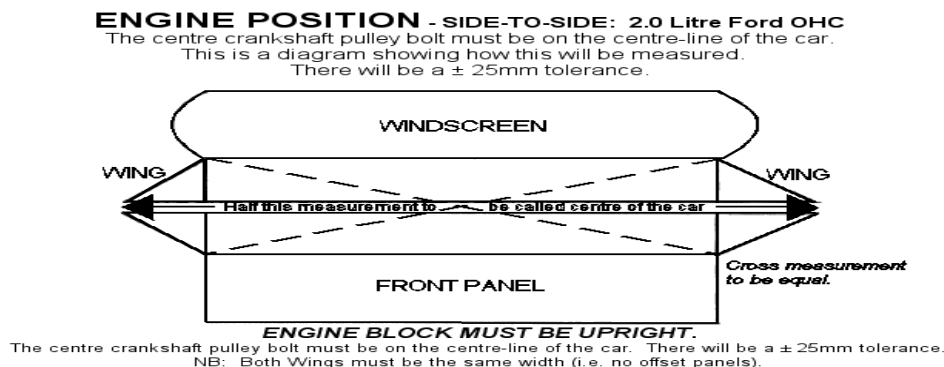
### Front-to-Rear

a. Will be determined by the following calculation, measured from the axle center-line to the rear of the engine block or bell housing face: 50% of original wheelbase + 711mm (28").

b. This is the minimum measurement, and any wheelbase tolerance cannot be included in this calculation. From January 1<sup>st</sup> 2013, cars with a standard wheelbase of 97.5" & over will be given a minimum engine position of 74.25" from the center line of the axle rather than using the calculation above.

### Side-to-Side

2.0 Litre Ford OHC. See diagram on next page:



## 9. GEARBOX & FINAL DRIVE

a. The only gear boxes permitted for use are the single rail, 2.0 Litre Cortina type 4-speed gear boxes, including 4-speed P100, 1600 Sierra and 1600 Cortina. It must be fitted as manufactured. Gears must not be changed or altered, i.e. no removal of gears or components, and no straight cut or close ratio gear sets (other than the Trans-X stock car box or the Quaife gear sets (Hot Rod Box), **and the 3 J Driveline Gear kit** with a maximum cost of the gear set not exceeding **£700.00 plus VAT**.

b. Differentials may be free, locked or the limited slip diff. only may be used.

c. It is permitted to use the 5-speed 2.8 Capri/Granada or 1600cc/2.0Ltr 5 speed Sierra gear box normally for long track use, either with an adaptor/spacer plate, or you may reduce the length of the first motion shaft to allow correct fitting. Gears must not be changed or altered I.E. no removal of gears of components and no straight cut or close ratio gear sets.

d. The only exception is that the gear change assembly may be altered; this may include part of the tail-shaft housing associated with the gear change only. **Aluminium bell housings are permitted & you may enlarge the existing hole in order to give excess to the clutch cable/Fork.** A clutch is required, and must be operated by a pivot arm from the outside of the bell housing.

e. Aluminium Gearbox tops are permitted from 1<sup>st</sup> January 2017

## 10. OIL COOLERS

Oil coolers are free but must stay within the confines of the engine compartment.

## 11. VEHICLE WEIGHT & BALLAST

**IMPORTANT NOTE TO ALL FORMULAS:** Cars may be checked at the end of a race. They must, at this time, meet the minimum and/or maximum permitted weights for each Formula, as listed below. Drivers should allow for wear of brakes, tyres, and use of fluids during a race which, depending on the length of a race, can be in excess of 3+kg. Infringement of this Rule, in most Formulas, carries a statutory race ban.

**All weights exclude driver.**

Underweight Vehicle Bans	
Car Underweight by:	Banned From Racing For:
0.001kg – 1.0kg	1 month
1.001kg – 2.0kg	2 months
2.001kg – 3.0kg	3 months
3.001kg & over	6 months

The minimum weight for the Hot Rod will be 700kg at any time. Any ballast must be welded in place or Bolted. Ballast, if required is not restricted to being within the reach of the driver.

The maximum right side weight will be 53.5%.

a. If you are checked and over the 53.5% but under 54% you will lose all points/monies due on the day and receive a final warning and loaded for the day.

b. If you are found on a second occasion to be over 53.5% but under 54% you will receive a one meeting suspension from your registered promotion & cannot race anywhere until this is served, also lose all points/monies due on the day. Anyone over 54% on their first check will receive an automatic one meeting ban, and loaded immediately with loss of any points or monies due (if applicable).

c. If a driver is found over 54% on a second occasion the penalty will automatically be doubled, or possibly carry a longer suspension. Checks will be carried out at any time.

d. Rear percentage weight will be a maximum of 45.00%

## 12. BRAKES

To be effective on all four wheels, bias braking permitted, disc brakes on the rear of the car are also permitted, parking brakes optional. Alloy calipers, or four pot brake callipers, are not permitted. Only steel disc or drums permitted. (Drilling of disc/drums is permitted). **Calipers cannot be modified from the manufacturers specifications e.g. drilling or grinding.**

## 13. AEROFOIL/REAR WING & ROOF SPOILER

**These are permitted within the following confines:**

The aerofoil referred to in this paragraph means one wing and two side fins.

a. One aerofoil may be fitted, and must be above driver's sight line.

b. The main wing must not be positioned further forward than the rear axle centre line.

c. The aerofoil must be constructed in aluminium or fibre-glass.

d. The aerofoil with side fins must be within the vertical confines of the original body shell, including moulded in bumpers when viewed at rear and side.

e. The aerofoil wing only must not exceed 305mm (12") in height above roof line.

f. The aerofoil wing must not exceed 457mm (18") length, front-to-rear.

g. Side fins must be of equal size and equal position, and should not exceed 356mm (14") above roof line, should not exceed length of wing, front-to-rear, by more than 51mm (2") at either end, and must not exceed 406mm (16") in height.

h. Numbers on side fins must be a minimum of 229mm (9") high by 38mm (1.5") strokes, ~~black on white.~~

i. A roof spoiler is permitted, must not exceed 152mm (6") above roof line, and must stay within the vertical and horizontal confines of the vehicle.

**NB:** If an aerofoil with side fins is not used (see **24. Racing Numbers**).

## 14. WHEELS & TYRES

Wheel rim width of a minimum of 6" and a maximum of 8" only will be used. The Hot Rod Formula has a one tyre regulation, which is the Hoosier 22.5 x 7.0 x 13.0 Spedeworth. The current price can be found by contacting Hoosier Tires on 01293 863579.

Tyre softener **or any tyre contamination** is not permitted. **Tyres will be randomly durometer checked.**

Tyre Ruling: One new tyre per meeting may be used, along with any 4 old tyres that have been previously used and declared (except at Eastbourne where you may use more old tyres if not using a new one.). These used tyres **MUST** appear in the drivers tyre history. Just because a tyre has been previously declared does not make it a used tyre, this will be the Scrutineers decision.

At the following championship events:-

- World, you are allowed a maximum of 5 tyres of which 4 can be new, the fifth tyre must be a used registered tyre.

- European / National / British, you are allowed a maximum of 5 tyres of which 2 can be new, the three remaining tyres must be used registered tyres.
- Best In Britain / English / Scottish / Irish, you are allowed a maximum of 5 tyres of which 1 can be new, the four remaining tyres must be used registered tyres.

The scrutineers discretion will determine if a tyre is classed as a used tyre.

New drivers may use 4 new tyres for their first meeting but must start at the rear of the grid for their first 3 meetings and may not use another new tyre until there 4<sup>th</sup> meeting.

If found with the wrong tyre number this will result in being loaded from the meeting losing the days points and also result in a 2 meeting ban.

**Tyre sharing is not permitted unless the tyre has been declared and used at 3 meetings you must also declare this with the office before the meeting.**

## 15. EXHAUST SYSTEMS

**Note for all Formulas:** If a silencer becomes ineffective or insecure during racing, the driver should automatically pull off. If the exhaust becomes ineffective within the last five laps, it may not be possible for the Start Marshal to issue a Black Flag, but you will automatically be removed from any result. Silencers must be effective in reducing noise.

- Exhaust manifolds are free.
- Any exhaust system passing through the driver's cockpit must be fully covered by a metal shield.
- Tail pipes. There must be a minimum of 76mm (2") and a maximum of 254mm (10") of tail pipe on the silencer, and must terminate rearwards or downwards under the vehicle.
- Cars should be fitted with either of the following silencers in standard form:
  - AX891
  - Fordson Major Box E1ADDN5320A or available in cross reference.
  - Simpson MS500.
  - Edwards Motorsport.**

## 16. COOLING SYSTEMS

Radiators are free, and must be forward of the engine in the engine compartment.

## 17. LIFTING EYES

Must be fitted with two lifting eyes under the bonnet, near turret tops or shock absorbers, and must not protrude from the front of the car. Also, two lifting eyes must be fitted at the rear, in the boot area, and must not protrude from the rear bumper or the rear panel. If your vehicle has a chassis or roll cage member which can be utilised in these areas, the lifting eyes do not have to be fitted.

## 18. WINDSCREENS/GLASS

- All glass must be removed.
- Laminated, perspex, or lexan front screens are permitted, but not recommended. They must have fitted and working washers and wipers, and a secondary form of fixing, and must not be bonded. You may not fit glass, perspex, or lexan into the driver's side, or passenger's side, front or rear door window apertures, or anything which may restrict access to vehicle. .
- A metal upright, to a maximum 38mm, minimum 19mm, box or tube section, **must** be welded or bolted to the centre of the front windscreen aperture, or multiple equi-distantly in the front windscreen aperture.
- A wire mesh panel covering the driver's side of the screen is not permitted.

## 19. STOP LIGHTS

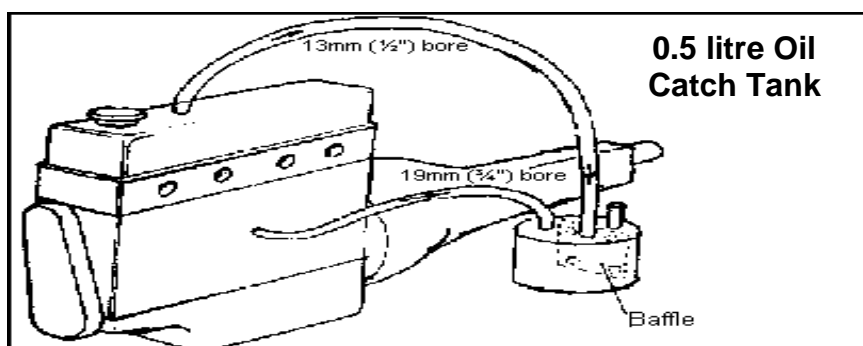
Either two stop/brake lights, or a centrally-fitted single stop/brake strip-light, must be fitted onto the parcel shelf, or hung from the roof in the case of hatchbacks. If two lights, they must be a minimum of 762mm (30") apart, facing rearward. Lamps must be operated by a switch on the peddle or hydraulic in the brake line. No other switches or modifications are allowed. Lamps must be a minimum of 76mm (3"), and a maximum of 127mm (5"), diameter square/rectangle. Bulbs must be of 21 watt intensity. Strip type lamps should be no wider than 406mm (16").

All Brake lights must be Red.

## 20. MIRRORS/GLASS

- Driver's side external door mirror must be fitted, and must not protrude beyond the extreme body width of the car. It should be of a spring-loaded or sheer type.
- A passenger side exterior mirror is recommended - it should be of a spring-loaded or sheer type.
- A rear-view interior mirror must be fitted.
- The size of the mirror approximately 152 x 100mm (6" x 4") maximum, and, if glass, should be covered with a clear plastic to prevent the glass from fragmenting.

## 21. OIL CATCH TANK



An oil catch tank, with a minimum capacity of 0.5 litres, must be fitted in the engine bay, and must have a minimum of two breather pipes connecting to it, one from the rocker box and one from the crank case. If the catch tank becomes ineffective during racing or practice, the car will be withdrawn from the event.

## 22. BATTERIES & ELECTRICAL SYSTEM

- a. Battery(ies) must be securely fixed and covered with a rot-proof material if they are not of a sealed type.
- b. A battery tray/s with adequate clamps (no battery boxes)
- c. Contact between the safety harness and battery must not be possible.
- d. Battery must be a minimum of 152mm (6") from the fuel tank.
- e. The battery position is free and a maximum of two batteries are allowed. Oversized batteries being used as ballast are not permitted.
- f. A battery master switch must also be fitted in the area of the rear left-hand window, and must be clearly marked "ON/OFF", or have an Electricity Danger Decal **& this switch when turned off must kill all power to the car.**
- g. If an electric fuel pump is permitted for your Formula, a switch must be fitted within easy reach of the driver.
- h. A self-starter motor must be fitted, and in working order at all times & you may use a competition start motor

## 23. FUEL TANKS & SYSTEM

- a. All fuel tanks must have a positive means of fixing (metal straps or bolted).
- b. Filler caps must not be prone to spillage - no push-on caps. Caps must be metal and secure, or screw-on type.
- c. Fuel tanks, including filler caps, must be covered by a metal firewall.
- d. Fuel outlet must be from top of tank.
- e. A breather pipe, which must incorporate a one-way valve, must be fitted.
- f. All fuel pipes must be inside vehicle.
- g. Only road-side fuel can be used (either BP Ultimate (NOT 102) or Shell V-Power or Esso Supreme). No additives permitted I.E. Upper cylinder lubricants, Octane booster. For full fuel specification please see last page of these rules.
- h. If there is a floor under the tank, there must be four 50mm holes in the floor, in case of spillage.
- i. A fuel shut-off tap must be fitted within easy reach of driver.
- j. Fuel lines must be metal, or metal covered
- k. A single electric pump may be used in place of original.
- l. Fuel tanks must be metal only, or FIA approved.
- m. Fuel regulators are permitted.

### Check below for the size and position of Fuel Tank:

- a. Carburettor banjo bolts must be drilled and lock-wired.
- b. A single electric pump with regulator may be used.
- c. Fuel tank with maximum capacity of 18 litres (metal only).
- d. Fuel tank must be fitted in front of the rear axle and behind the driver.
- e. Fuel tank must be covered by a complete metal firewall, or a metal firewall separating driver from tank.
- f. There must be a minimum gap of 152mm (6") between fuel tank and batteries.

## 24. RACING NUMBERS & DRIVERS' NAME

- a. **SIDE OF CAR.** The driver's racing number must appear on both sides of the car. Preferably, these should be in large, American-style numbers on a contrasting background. Background must extend a minimum of 50mm (2") beyond the outline of the number(s).
- b. **FIN PLATE(S).** Must be used if aerofoil is not applicable, and the numbers must be a minimum of 229mm (9") high by 38mm (1.5") stroke, ~~black on white background~~, fitted above the roof-line, but must not be higher than 305mm (12") in total, and 559mm (22") in length.

c. **AEROFOIL/FIN PLATES.** Numbers should be a minimum of 229mm (9") high by 38mm (1.5") stroke (~~black on white background~~), on each side fin so visible from both sides of the car.

d. **DRIVERS' NAME.** A sun visor, to an approximate depth of 152mm (6"), with your name or nickname clearly sign written, must be fitted. All sign-writing must be approved by the Promotion; other names permitted are those of sponsors and mechanics only.

## 25. ROOF GRADING

Effective from the 1<sup>st</sup> August 2017 2.0 Hot Rod grades are to be displayed via the car roof fins and not the roof itself.

The fins must be as follows:-

- White Grade – Black numbers on White background
- Yellow Grade – Black numbers on Yellow background
- Blue Grade – White numbers on Dark Blue background
- Red Grade – White numbers on Red background
- Points Champion – Black numbers on silver back ground
- World Champion – Black numbers on Gold back ground

The rear of the fin plate must be plain and white in colour.

The roof of a car ~~cannot have~~ **may display** a championship status ~~unless~~ **providing** the driver is the reigning champion **e.g. World Champion, Southern Champion**. No sign writing is permitted on the roof of the car displaying previous championship history which is no longer current e.g. the 2015 National Champion cannot display the fact of this in 2017.

If you win a race at a meeting; you will start the remaining races from the rear of your grade. Should you win another race at the same meeting – you will be automatically upgraded. Multi-Champions will start next to the World Champion.

When signing in you will be issued with a grid which shows your starting position for your races, unless you are instructed differently by a race official or it is a championship event i.e Reverse grid format. Drivers are reminded that it is your responsibility to line up in the correct position on the grid this includes leaving gaps if certain cars are absent. If spotted starting in the wrong grid position before the initial green flag you will be penalized to the back of the grid. If it is brought to the steward of the meetings attention after the initial green flag you will be excluded from the result. This is subject to change depending on the promotion, drivers should confirm with the steward of the meeting beforehand which race format is being used.

***The British Championship, European Championship & National Championship will be classed as an open championship.***

***Certain promotions have started a new lining up system with in the Red/Blue grade, were the drivers in this grade will pick out of the hat at the drivers briefing for a reverse grid format amongst there grade.***

Grid Line up / Roof Order:

World	Gold
Points Champion	Silver Roof
European	Red/Yellow Chequered
British	Black/White Chequered
National	Gold Stripe with red roof.
Best In Britain	Union Flag
English	St. George's Cross
Scottish	St. Andrew's Cross
Northern Irish Champion	Union flag incorporating the Ulster banner
Southern Irish Champion	Republic of Ireland (Irish Tricolour)
Red	
Blue	
Yellow	
White	

~~All roof grade champions must start from the rear of the grid. The only exception to this Rule is where time trials, or specific grid orders, are implemented. Any of the champions, racing together, should start in order, as listed i.e. World Champion at the back of the grid, etc.~~



## 26. FINAL PREPARATIONS & COLOURS

Make sure that, in the construction of your car, you have not included any flammable material; all original interior and exterior trim, mouldings, and wiring, must be removed (unless stated otherwise). The external painting of the car must, at all times, be of professional appearance — preferably in bright colours, although any colour scheme is permitted. A maximum of two cars may be painted in team colours, or painted to look similar to another car, unless it is required and specifically stated by the Promotion (i.e. Team Events). All sign-writing must be of a professional nature. Scrutineers are instructed to refuse any car which they consider unsafe, unsightly, or in any way offensive.

## 27. SCRUTINEERING OF NEW CARS

A new car or space frame to be introduced into the formula, must have permission from Spedeworth before it is built, and once ready to race, must be scrutineered at a meeting prior to the first meeting where it is intended to be raced.

## 28. TRANSPONDERS

A timing transponder must be mounted above the floor with a 3" hole so that the transponder has a direct line of sight to the track, it must be fitted between the two 'B'. The beam is projected at an angle, so the further you fit the transponder away from the floor the larger the hole will need to be. The distance will be checked randomly and you will risk exclusion if your transponder is fitted further forward than the required distance. Transponders must be securely fitted and must have a permanent feed only being disabled by the master isolator. It would take a number of weeks to flatten a battery with the small current these units draw. You will be informed after practice if your module is not functioning, but following that if your transponder is still not working then you will not be lap scored electronically.

As from 1<sup>st</sup> January 2013 the transponder will fall in-line with national hotrods 1.8 metres from the most furthest forward point of the car.

## 29. VIOLATIONS

- a. When referring to the engine, gearbox, differential, mechanical, or construction Rules & Regulations, the principle will always be:
- b. Unless permission is specifically granted to make modifications (or any variation), nothing may be done to alter or change the Standard Parts in any way.
- c. Presentation of a vehicle for Scrutineering is a declaration by the entrant that the vehicle is eligible for that event.
- d. Car, engines, and fuel will be checked on a random basis. Violations, or refusal to allow an engine check, will result in an immediate suspension of all racing facilities.
- e. All car and engine specifications will be taken from either the manufacturer's Technical Specification Books, or the Technical Service Data Books for cars, as published by Glass's Guide Service Limited. If there are any discrepancies occurring between books, the Promotion will exercise its' judgement, which will be final in any dispute.
- f. Clarification on any item may be sought from Spedeworth.
- g. Each driver is permitted only one car per meeting, and each car is permitted only one driver per meeting.

## 30. ENGINE SEALING

- a. Spedeworth: We may at any time require your engine, or other parts sealed. This may or may not mean your engine/parts will automatically be stripped or checked. It could be we wish to monitor your performance or seek clarification on any item. It is normal to strip engines/parts at all major championships unless they run consecutively in which case with agreement of Spedeworth stripping may be postponed (see below).
- b. Driver: Drivers wishing to have their engine sealed may do so. It will require two people (one may be an official, the other a Scrutineer) to be present at the final stages of build and will incur a charge based on the time and distance travelled. If this option is taken at major championships your engine will not require stripping, unless seals are not intact. Seals can only be removed by Spedeworth officials and if removed without permission the engine/parts will be deemed illegal and the driver suspended pending Board of Control.. If any engine/parts are sealed because Championship events are within a period, which may exclude that driver due to the rebuild time. A driver may, with Spedeworths' agreement, postpone stripping for three meetings maximum.
- c. Provision for sealing must be made on either side of the sump, two head bolts (if not covered, in part or wholly, by rocker cover), two inlet manifold bolts, and two rocker cover bolts. If this is not done, you will lose the opportunity to have your engine sealed.

## 31. RULE CHANGES

The Promotion may, at any time, make amendments to the specifications, in the interests of safety. It may also make amendments in the interest of expense to the driver or in areas that are determined to be detrimental to the future of the formula. Also if unnecessary advantage has been deemed. Additionally if it is felt the Formula is drifting away from its original concept. Current registered drivers will be notified automatically, but if you are building a new car from these specifications, please check with Spedeworth, who will advise of any amendments. It is the responsibility of the driver to prove to the Promotion that the part is legal, by way of written proof of where the part originated. This must be undertaken within seven days, otherwise the part(s) in question will be

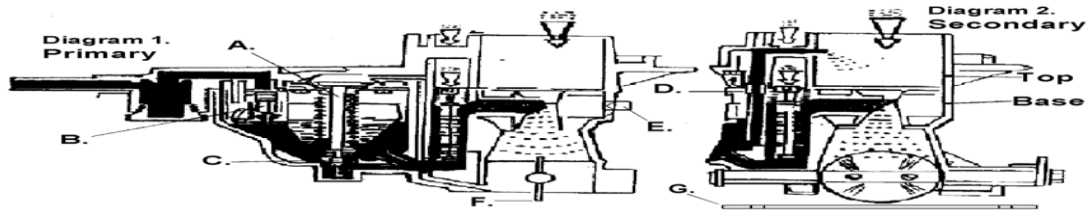
deemed to be illegal, resulting in immediate suspension from racing and referral for disciplinary action. Unless these Rules state you can do it, you **CANNOT DO IT**.

## PRIMARY & SECONDARY FUEL ENRICHMENT SUPERSTOX, 2.0 Litre HOT RODS, & LIGHTNING RODS

(see Lightning Rods Exception in D. below)

Diagram 1. shows fuel enrichment under heavy acceleration, and Diagram 2. shows high speed fuel enrichment, both of which have caused Drivers and Engine Builders confusion regarding which Formulas have them fully operational, and which do not.

So, for the future, the following Regulation for the Formulas will apply:



- A. Indicates diaphragm and rod which operates the power valve. This may be operational or removed.
- B. Indicates needle valve, which controls fuel supply. This must be a maximum of 250 (indicated on side of needle valve).
- C. Indicates power valve, which must be fitted, but may be sealed-off.
- D. Indicates a calibrated bush, which is fitted on the secondary side of the carburettor, between the top and the base. This bush must be fitted, but may be sealed-off or enlarged.  
*(Exception: Lightning Rods -- the bush may not be blanked-off or modified.)*
- E. It is permitted to use a grub screw, or similar device, to fix the auxiliary venturi to the carburettor body.
- F. Primary and secondary throttle valve/butterflies may be modified to open together.
- G. A single adaptor/insulator block (approximately 5mm thick, including two gaskets), must be fitted between carburettor and inlet manifold.

NO OTHER MODIFICATIONS TO ANY OF THE ABOVE WILL BE PERMITTED.

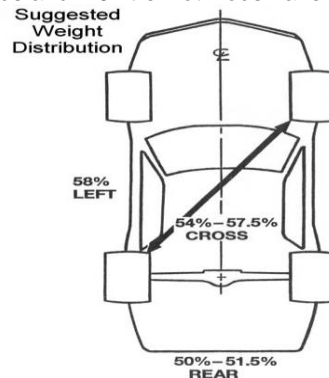
### SUGGESTED WEIGHT DISTRIBUTION:

The diagram here relates to Anti-clockwise Formulas only. Please reverse weight distribution for clockwise formulas. For tarmac track cars, use the following weight distribution as a good guide:

**Left side—58%, Rear—50% - 51.5%, Cross Weight—54% - 57.5%**

For left side weight percentage on a tarmac track, use as much as possible so that the left and right sides of the car are closer to being balanced during cornering. For rear weight percentage, 50% to 50.5% is used on faster tracks, while 51% to 51.5% is used on ¼ mile tracks. Cross weight is used to keep the chassis tight during cornering. It is advisable to run as little as possible. Use just enough to balance the car. More cross weight heats up the right front and left rear tyres more, making it a three wheel race car. You want a balanced combination that gets more weight on the left front. The basic range of cross weight is 54% to 57.5%.

**IMPORTANT NOTE:** National Hot Rods and 2.0Litre Hot Rods have a maximum right side percentage weight.



## 32. FUEL SPECIFICATION

**All Oval Racing Formulae:** Permitted fuel specification from 1<sup>st</sup> January 2008 (this specification supersedes all previous specs).

1. All cars must only use fuel from roadside pumps as defined below.  
Petrol (Motor Gasoline of the type on sale to the general public from roadside filling stations) BS 4040 (Leaded) Subject to a valid permit for use. LRG (Unleaded), BS EN 228 (Unleaded), BS7800 (Super Unleaded).
2. Petrol is a product refined from crude oil that contains a large number of identifiable compounds that can typically be 250 in number. These compounds can be identified and compared to the available petrol from major oil companies and suppliers.
3. Unless otherwise stated, or the distinction is made between leaded and unleaded petrol, major gasoline fuel shall meet the following; Acceptance levels for Octane numbers will be determined at 95%

confidence level. Only additives to this motor gasoline fuel solely for the purpose of lead replacement are allowed.

4. Lead Replacement Gasoline, LRG, also known as LRP. Only additives from Sodium, Phosphorous, Potassium, or Manganese according to manufacturers recommendations are allowed. Note; Manganese can enhance octane values in any petrol. Under no circumstances will values in excess of 0.005 grams/litre be permitted.

**Lead in excess of EU directive 98/70EC requirements is illegal.**

5. We reserve the right to amend the detail of the above specification to reflect any change occurring in the quality of the fuel on sale to the general public at any time.

#### **Roadside fuel consistency when testing fuel samples.**

	<b>BS EN 228</b>	<b>BS 7800</b>	<b>BS 4040</b>	<b>LRG/LRP</b>	<b>Test Standard</b>
Motor Oct No (max)	89.0	89.0	89.0	89.0	ASTM D2700/86
Mon (min)	85.0	86.0	86.0	86.0	ASTM D2700/86
Research Oct No (max)	100.0	100.0	100.0	100.0	ASTM D2699/86
Ron (min)	95.0	97.0	97.0	97.0	ASTM D2699/86
Lead (max)	0.005	0.005	0.15		ASTM D3341 / IP362
Lead (min)	ASTM D3237	ASTM D3237		0.005	ASTM D3237 / D3341 / IP362
Density @ 15°	0.720 - 0.775	0.720 - 0.775	0.720 - 0.775	0.720 - 0.775	ASTM D1298/ D4052
Oxygen % max	2.7% w/w	2.7% w/w	2.7% w/w	2.7% w/w	Elemental
Nitrogen % max	0.1% w/w	0.1% w/w	0.1% w/w	0.1% w/w	ASTM D4629/ IP379
Benzene % max	1.0% v/v	1.0% v/v	1.0% v/v	1.0% v/v	EN238
Sulphur	150mg/kg	150mg/kg	150mg/kg	150mg/kg	EN ISO 14596 / ASTM D2622
Olefins*	18% v/v	18% v/v	18% v/v	18% v/v	ASTM D1319
Aromatics*	42% v/v	42% v/v	42% v/v	42% v/v	ASTM D1319

\* Olefins and Aromatics values are expressed as a percentage of total fuel.

### **33. RACEIVER**

**All drivers MUST use an official Raceiver.**

**Any driver whose Raceiver is not working when forming the grid prior to a race will not be allowed to race, unless it can be repaired before the race start.**

**It is strongly recommended that you carry a spare battery either in your overall pocket or taped inside your car.**

### **34. GENERAL RULES OF RACING**

Each driver is only permitted one car per meeting and each car is only permitted one driver per meeting.

The Malcom Girling Rule may only be used on championship races which covert a roof grade e.g. World Championship. This is when a car has deliberately been taken out by breaking the rules of racing within the last 3 laps of the race e.g. a car coming off the infield to stop the leader.

If the Steward Of The Meeting decides that the Malcolm Girling has come into effect the result shall go back to when the offence occurred and the leader of the race at that point will become the winner. The Malcolm Girling rule only applies to the driver leading the race.

**Drivers and teams are reminded that a secondary means of supporting a vehicle must be used when working underneath a car that has been jacked up (i.e. axle stands).**

**Please note that all of the above rules are subject to change in respect of Health & Safety requirements.**

## **35. Engine rules for Spedeworth 2.0 Hot Rods & Superstox using Ford Zetec “Black top” 2 Litre engine.**

### **PERMITTED ENGINE**

The only permitted Zetec Black top engine is the Ford 1988cc, 16 Valve engine in its 136PS form (codes NGB EDDA-G EBBC EBBD EDDB EDBB) with nominal bore 84.80mm and stroke 88.00mm. Or new standard un coded Ford replacement complete engine.

Production tolerances are permitted providing the total swept volume does not exceed 1989cc.

### **ENGINE GENERAL**

Engines will be mounted upright and aligned fore and aft in the chassis.

The addition of any material be it metal, plastic, or composite etc. by any means be it welding, bonding encapsulation or encasement to any component is prohibited.

However, specific repair of the mounting points of the cylinder block to the transmission or chassis is allowed, whilst other casting repairs may be allowed with prior written approval of Spedeworth.

The use of non-standard replacement fasteners, nuts, bolts, screws, studs and washers which are not connected with, or which do not support, any moving parts of the engine or its compulsorily retained accessories is permitted. Freedom granted to any fastener does not allow for freedom to move items relative to each other. For components that are granted the freedom for the fitment of a key or dowel, then material may be removed to allow the fitting of the key or dowel.

Only one hole or keyway per component is allowed.

The use of thread locking compounds is permitted.

Gaskets are free **however, no competition gaskets are permitted.** ~~except for the cylinder head which must be of standard Ford manufacture for the engine.~~

Any process of cleaning may be used on any component providing the surface finish, which must remain standard, is not affected. The expression ‘Standard’, ‘Standard production’, or similar expression is deemed to imply that the part has been manufactured by Ford, or a Ford Motor Company Ltd.

Authorised sub-contractor, for specific use on a specific model of the engine. Any machining marks on cast components resulting from manufacturing procedures will not cause disqualification. Only machining and component preparation carried out by Ford Motor Company Ltd., or by a Ford Motor Company Ltd.

Authorised sub-contractor is allowed unless otherwise specified.

Any production deburring or imperfection removal during initial manufacture may not be modified or extended.

The scrutineer’s decision will be final if a dispute arises regarding the amount of tool, or other marks that are evident in any particular component.

The exterior surfaces only (of the complete engine assembly) of ferrous parts may be protected by paint or similar means.

No internal component or surface may be coated by any protective finish. No aluminium components may be protected, **The only exception to this is the exterior of the Cam cover/Rocker Cover.** This paragraph confirms previous and future statements that no rework may be carried out on any component unless specifically authorised by Spedeworth. The engine and associated parts must remain exactly as produced by the Ford Motor Company unless expressly detailed in these regulations.

If the regulation allows a change, then that authorization would allow the change to be carried out. However, any statement defining minimum weight or dimensions does not grant permission for rework to obtain these minimum values, unless carried out in accordance with these regulations.

Only Ford standard parts (Parts manufactured by Ford or a Ford Motor Company authorised sub-contractor) specifically for the 2 Litre "Blacktop" version of the engine can be used in these formulas. No treatment that alters in any way the surface finish, hardness, or other property of the original production component is allowed.

The only exception to this is any deposit derived from the lubrication and combustion processes naturally occurring during the running of the engine. Spedeworth reserve the right to prohibit the use of specific components introduced as production changes, if in the opinion of Spedeworth, they are deemed to have a performance advantage. If in doubt contact Spedeworth.

Engine/transmission mounts attaching to standard Ford components must retain the standard dimensions of the boss or other attachment point without modification.

All motor codes, numbers and build specs etc must be visible and un touched.

## **CYLINDER BLOCK**

It is not permitted, as means of repair, to replace damaged cylinder bores with cylinder liners.

No machining of the cylinder block is permitted except honing/glaze busting of cylinder bores.

The crankcase breather may be modified, including removal, as long as no air and/or oil escape from this area other than through pipe-work to the catch tank.

~~Pistons must not protrude above block deck face at any point.~~

***The piston must be a minimum 10 thou down the bore at top dead centre.***

Standard oil dipstick tube and dipstick must be fitted.

It is not permitted to remove or modify the four standard oil spray jets.

## **OIL PUMP**

It is not permitted to modify the standard Ford oil pump/front cover in any way.

## **CYLINDER HEAD (INCLUDING VALVES AND VALVE GEAR)**

It is not permitted to replace valve guides and valve seats inserts.

No work that removes, adds, replaces, or transfers material is allowed on the cylinder head with the following exceptions.

- a) Simple cleaning which does not alter in any way the shape of the component.
- b) Minimal material removal from the head face to correct combustion chamber volume and/or reclaim head flatness. No internal rework of any combustion chamber is permitted.

The cam cover assembly cannot be modified or replaced.

The oil filler cap shall be sealed by spring/lock wire or similar.

All valve train components must remain standard.

Valves must remain standard Ford supplied items, no re profiling or polishing is permitted. The original 45° (90° included) seat angle must be maintained.

Standard valve stem seals must be retained.

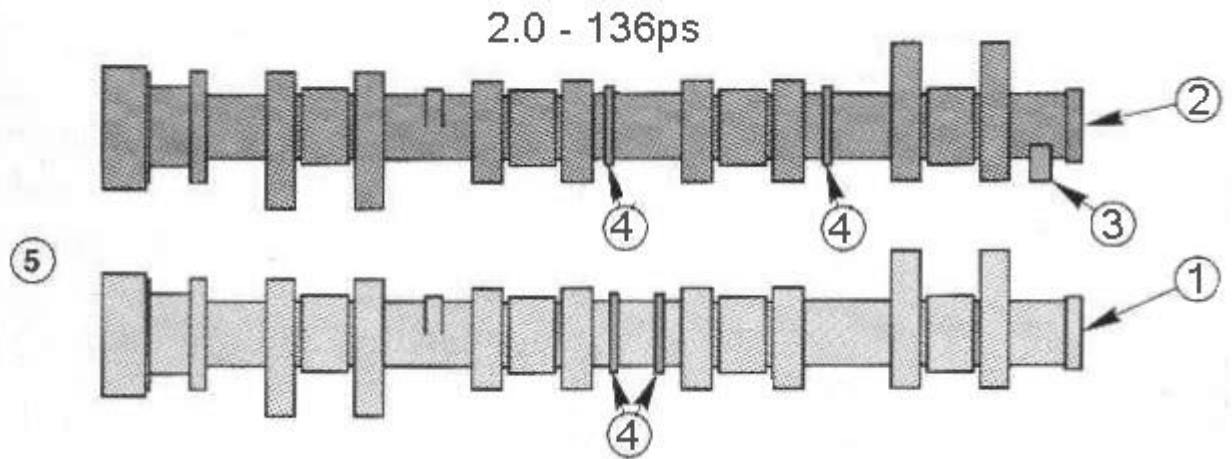
## **CAMSHAFTS AND PULLYS**

The only permitted camshafts are the standard production camshafts as per picture below.

The camshafts must remain entirely unmodified. It must be fully manufactured and ground by the Ford Motor Company. It is prohibited to grind from blanks, regrind or reprofile. Only the production surface finish is permitted. Shot peening, shot blasting, surface treatments or polishing are prohibited. Exhaust and inlet camshafts must not be interchanged.

The only permitted camshaft drive pulleys are the standard Ford items. The cam drive pulleys may be keyed to the camshaft by dowel only.

The sprung loaded cambelt tensioner may be locked or replaced with fixed item.



- 1 Exhaust Camshaft
- 2 Inlet Camshaft
- 3 Cam Position Reference - Inlet Camshaft
- 4 Identification Rings
- 5 Driving end (pulley end)

### **CONNECTING RODS**

Connecting rods must be standard.

Machining/grinding is not permitted to remove metal from the connecting rod or cap. Polishing is prohibited. Connecting rod bolts are free subject to them remaining in ferrous material, the conrod may not be modified to fit bolts and the minimum weights respected.

### **PISTONS**

Pistons must be standard production pistons unmodified in any way.

All three piston rings must be fitted as intended, piston rings must be standard production items or replacement items to Ford Motor Co. dimensions.

### **CRANKSHAFT**

A standard crankshaft must be used. No balancing is permitted.

Polishing other than the 9 bearing surfaces is prohibited.

Crankshaft journals must remain within Ford positional tolerances if a repair regrind is carried out.

Crankshaft pulley and damper must be retained and un-modified.

Additional drives to water pump may use this pulley, or extra pulleys mounted in front of the crankshaft damper.

It is not permitted to alter the number of bearings or fit bearings of less than standard production width.

The crank journals may be reground for reclaim. Standard oversize and undersize bearings are permitted.

A marker must be fitted which accurately aligns the crankshaft to the cylinder block at No.1 piston TDC. This marker must be visible and fully accessible to the scrutineer's without removing any component other than external bonnet panels, and without removing the engine from the car.

### **FLYWHEEL AND CLUTCH**

The mandatory steel flywheel supplied by Spedeworth may not be modified in anyway. Flywheel bolts are free subject to them remaining in ferrous material. No modifications to either crankshaft or flywheel in order to fit is permitted.

Clutch to be standard Ford Pinto based 8.5" (8 1/2") item only. No competition items. Standard Ford Pinto based starter motor must be fitted. **Competition starter motors can be used.**

### **ENGINE COVERS**

The cam belt covers cannot be modified or deleted.

### **SUMP AND PICK UP PIPE**

Oil sump and oil pick up pipe are free.

### **OIL FILTER**

Oil filters are free but must have a secondary fixing.

### **OIL COOLERS**

No oil cooler is permitted.

### **COOLING SYSTEM**

A water based liquid cooling system is mandatory. The standard production water pump and housing must be retained, although drive to the pump, its rotational speed and direction may be changed. The radiator and associated pipes are free.

No other pump may be used to circulate or assist circulation of the coolant liquid.

Thermostat housing is free.

### **ENGINE IGNITION CONTROL UNIT (ECU) AND ELECTRICAL**

The only means of ignition will be by use of Ford crankshaft speed sensor fitted to the std manual sensor housing and Ford based ignition coil. No other sensors engine or chassis permitted.

The mandatory engine ignition control unit (ecu) and wiring loom supplied by Spedeworth will be registered to driver and electronically sealed. Neither can be modified in any way.

The engine ignition control unit (ecu) and/or any other ignition components may be exchanged, or electronically interrogated at any time (including the time allocated for practice or testing) upon the request of a designated official from Spedeworth.

It is prohibited to use any other method or component to trigger, distribute or time the ignition.

The coil unit may be repositioned, the HT leads to the sparking plugs are free.

Sparking plugs are free, provided they fit the engine without any modification to the cylinder head or the sparking plug and that the sparking plugs place the spark gap in the same position as the production sparking plug within the combustion chamber.

The ECU diagnostic connector must be positioned in an accessible position, allowing the scrutineer free access to it at all times.

### **INLET MANIFOLD**

Mandatory inlet manifold supplied by Spedeworth may not be modified internally.

Standard manifold to head casting gasket or silicone based sealer may be used to seal face to cylinder head only. At any point in time Spedeworth can introduce the fitment of a restrictor plate fitted between manifold and carburettor mounting plate of any given size if it is deemed suitable to reduce the output of any engine at any time before during or after any practise, testing or racing.

### **CARBURETTOR**

a. Only the standard Weber 32/36 DGV/A carburettor may be used with a maximum sized chokes of 26mm and 27mm.

b. No polishing or re-profiling is allowed.

- c. No modification to the carburettor body or original design. The interchanging of the carburettor top from other Weber models is not allowed but ***float bowl vent & the air correction jet vent, & the idle jet vent may be modified.***
- d. Gaskets must be original or replicas of original (i.e. no modified gaskets).
- e. A single original specification adapter/insulator block must be fitted between carburettor and inlet manifold, with two gaskets approximate total thickness 5mm I.E. as supplied with Gasket set.
- f. Main jets, primary and secondary jets, auxiliary venturi, and emulsion tubes may be replaced with a different size of the same part.
- g. Accelerator pump jets may be changed, but face downwards towards butterflies.
- h. Butterflies may be modified to open together, replacement spindles may be fitted with standard screws. Cold starting devices may be removed, with retaining lugs and subsequent holes blanked off.
- i. Air and fuel galleries may not be enlarged or modified; fuel may enter needle valve/float chamber from either side. Floats may not be modified or weighted, and must control the fuel flow.
- j. Needle valves may not be larger than 250, and not enlarged or modified.
- k. The power valve must be fitted in the base of the fuel bowl, but may be sealed off, and the diaphragm may be removed.
- l. No trumpets are allowed. The calibrated brass bush which controls the high speed enrichment, fitted on the secondary venturi side of the carburettor between the top and base of the carburettor, may be sealed off or enlarged, but must be fitted.
- m. A secondary fixing on the fuel feed-line is required. It is permitted to use a grub screw, or similar device, to fix the auxiliary venturi to the carburettor body.

IT MUST BE CLEARLY UNDERSTOOD THAT THE OVERRIDING PRINCIPLE OF THESE REGULATIONS IS THAT UNLESS IT IS STATED THAT YOU CAN DO IT, YOU SHOULD WORK ON THE PRINCIPLE THAT YOU CANNOT.

Whilst Spedeworth will endeavour to inform Competitors of any changes of components or specification they reserve the right to do so at any time during the life of these Regulations.

**The following parts have to be brought from Spedeworth Motorsport**

1. Inlet Manifold
2. Flywheel
3. Ignition pack and wiring loom

**These are all numbered parts, so to buy these items please call 01252 322934**

***From the 6<sup>th</sup> June 2020, All Zetec engines must be using the Latest spec Spedeworth flywheel & not the IKE model. Also must be on the OMEX ECU & Wiring Loom.***

With immediate effect the maximum price anyone can pay for a Zetec exhaust complete with silencer will be £700 plus VAT, and all Zetec exhausts and silencers in use must be freely available to purchase for that price from a supplier.



## Protest Zetec Engine Buying Price Announcement

Spedeworth / Incarace would like to announce that the protest buying price for the zetec engine for the 2.0 Hot Rods will be £1500 + VAT.

The buying price of the zetec engine is the price to be paid to buy and protest another driver's engine at a race meeting. *To buy the engine you have to be a licenced driver to this formula and racing at the event. **The driver buying the engine can be kept anonymous.***

This price does not include the inlet manifold, Carburettor, clutch and flywheel, wiring loom or the ECU.

Spedeworth / Incarace are looking to make short oval racing more affordable for drivers and to encourage more drivers into the sport and we believe that this is another way of achieving this goal.

**REVISED RULES FOR 2020 HIGHLIGHTED IN BOLD/ITALIC RED PRINT**  
**ITEMS MARKED ~~STRIKETHROUGH~~ ARE NO LONGER ALLOWED**  
**2020 2.0 Hot Rod Technical Specifications, Issue 10, Dated 3<sup>rd</sup> September 2020.**