

2010 INCARACE CLASSIC HOT RODS

CAR CONSTRUCTION RULES AND REGULATIONS

INTRODUCTION

The objective of this formula is **not** purely competition. The look of the cars shall be considered more important than their performance. ~~There will be no championships.~~ The cars will look like Hot Rods from the 1960's/early '70's, and engines should sound like cars of the period. It is our aim to encourage a variety of types of car to appear. However, hatchbacks and other cars belonging to the 'hybrid era' (***Talbot Sunbeam's, Mazda 323's, Toyota Starlet's, Peugeot 205's etc are not permitted***) **with the exception of the Vauxhall Chevette**. All types of car are at the discretion of the organisers in any case, and must be in keeping with the spirit of the formula. The fact that a car "existed" in road going form during the period this formula represents, does not automatically mean it will be accepted for racing, unless it was ever actually used as a Hot Rod. Any enquiries regarding the building or modification of cars not covered by these rules, must be approved by the Promoters INCARACE (contact details below), BEFORE they are built or made.

VIOLATIONS

When referring to the engine, gearbox, differential, mechanical or construction, rules and regulations the principle will always be: Unless permission is specifically granted to make modifications, or any variation, nothing may be done to alter or change in any way the standard Parts.

Unless these rules state you can do it, you CANNOT DO IT.

Cars, Engines and Fuel will be checked on a random basis and all drivers must be prepared to have their engine stripped for examination at any time. If the driver does not have the expertise to do it, then he/she must provide someone to do it for them. Refusal to allow the engine strip may result in a ban of up to one year from all formulas.

Violations will result in an immediate suspension of all racing facilities and any refusal will also result in an immediate suspension.

All car and engine specifications will be taken from the Technical Service Data book for cars as published by Glass's Guide Service Limited.

It is the drivers responsibility to check the legality of their own car prior to competing.

NB: Drivers are reminded that scrutineer checks can be carried out at any time. If parts are suspected of being illegal, make sure you leave them with the promotion if you do not agree. If you refuse it will automatically make the parts illegal. It is the responsibility of the driver to prove to the promotion that the part is legal by the way of written proof of where the part originated. This must be done within 7 days, otherwise the part(s) in question will be deemed to be illegal and will result in immediate suspension from racing and referral for disciplinary action.

SCRUTINEERING

Arrival at the Raceway is required **a minimum of 1 hour** before the advertised start time to allow scrutineering to be carried out. You need to present your car to the scrutineering area to be checked, as soon as possible after arriving at the raceway. The driver must accompany the car, complete with racing overalls, crash helmet, race suit and race licence.

1 – TYPE AND BODY

Only pre-1976 ~~British built~~ saloon cars and engines are allowed.

Bodies, including doors, must be steel. Bonnets, wings, front and rear wheel arches and boot lid may be aluminium or fibreglass. Fibreglass "flip fronts" on Minis are allowed. No X-pack arches are allowed on Escorts. No aerofoils or wings may be fitted, with the exception of a small boot lid lip spoiler on Mk1 or Mk2 Escorts. Panels that are damaged beyond reasonable repair may be replaced by fabricated panels made from the same thickness material. These must be attached in the same way and in their original position.

The wheelbase must be within plus or minus 3 inches of the standard vehicle.

The body must not be cut and lowered, narrowed or shortened.

Any cutting of the bulkhead must be done within the spirit of the rules – the decision of the scrutineer is final.

Engines must be kept in the centre line of the car from side to side.

2 – WEIGHT

The minimum weight ready to race is 700 Kg or 575 Kg for Minis and Hillman Imps, exclusive of driver. Cars can be weighed at any time and must comply with this weight ruling.

3 – ENGINES

Ford Kent pushrod engines, limited to 1700 c.c. Lightening and balancing allowed. Steel crankshafts and con rods are allowed. Both cross-flow and pre-cross-flow motors permitted. ***NO BD or Lotus or Siamese blocks are allowed, however use of the 1500 block with a cross flow head is allowed.*** Any other engine must be discussed prior to use. Engines must stay in original position. ***The Cosworth A6 cam (or replacement standard Cosworth A6 profile cam) must be used in ALL cross-flow engines.*** Vernier wheels are allowed. Offset dowels are allowed. Duplex timing chains are allowed. Cylinder heads must be of cast iron with only two valves per cylinder – otherwise free. Rocker gear may be modified, although roller rockers are not permitted. Steel rocker posts are permitted. Any type of modified push rods are permitted. Manifolds are free. ***Carburettors can be 40, 45, 48 or 50 DCOE Webers (or Dellorto equivalents) but in any case must only have a maximum choke size of 36 mm. Only side draught carburettors may be used.***

The following rule regarding the 2000c.c. S.O.H.C. Ford (“Pinto”) engine will be under review and will remain in force until the end of June 2010. A decision will then be taken regarding any revised rule for the remainder of the season, which will then come into force on 1st July 2010.

The 2000c.c. S.O.H.C. Ford (“Pinto”) engine is allowed, to the following specifications. A maximum overbore of +60 thou is permitted. Cylinder blocks may be ‘decked’. Any crankshaft up to Cosworth (steel coated) spec. is permitted, although the stroke must remain standard. Steel con rods are allowed, with competition bolts/studs and nuts. Lightening and balancing allowed. ***Pistons are free but must not protrude above the block.*** Cylinder heads must be original (i.e. cast iron) but may be modified by skimming, porting and polishing. Head gaskets are free. Valve guides may be replaced by the phosphor bronze type. Valve sizes are not to exceed 45.5mm inlet and 38.1mm exhaust. Vernier wheels are allowed. Camshafts are free. Manifolds are free. ***Dry sump systems are NOT allowed.***

The maximum carb size will be 45 DCOE Weber or Dellorto equivalent, with a maximum choke size of 32mm.

If the above rule for the 2000c.c. S.O.H.C. Ford (“Pinto”) engine is regarded as unworkable or detrimental to the formula in the review period, then it is currently proposed that the following rules will then apply. Please note that these proposed rules are NOT set in stone, but are noted below to inform drivers in advance of what the rule may be revised to on 1st July 2010.

The 2000c.c. S.O.H.C. Ford (“Pinto”) engine is allowed, to the following specifications. A maximum overbore of +60 thou is permitted. Cylinder blocks may be ‘decked’. Any crankshaft up to Cosworth (steel coated) spec. is permitted, although the stroke must remain standard. Steel con rods are allowed, with competition bolts/studs and nuts. Lightening and balancing allowed. ***Pistons are free but must not protrude above the block.*** Cylinder heads must be original (i.e. cast iron) but may be modified by skimming, porting and polishing. Head gaskets are free. Valve guides may be replaced by the phosphor bronze type. Valve sizes are not to exceed 45.5mm inlet and 38.1mm exhaust. Vernier wheels are allowed. Camshafts are free. Manifolds are free. ***Dry sump systems are NOT allowed.***

Heads modified as above, must use a standard 32/36 downdraft carburettor with a maximum choke size 26/27mm.

You may use any standard 2 litre S.O.H.C. Sierra/Pinto head. No modification is allowed except valve spring seats may be machined. Valves must be standard and of standard Ford length. N.B. On Standard Ford Inlet Valves only, where the back of the valve meets the valve seat, there may be a slight lip, this may be ground

away at a 30° angle, to a maximum width of 2.5mm. Over size valve stems are allowed, and valve seats may be re-cut. A three angle valve seat may be used to the following specification: Angle 1 – Combustion Chamber 30°, Angle 2 – Valve Seat 45°, Angle 3 – Port 60° - 65°, with valve seat width free. No gas flowing or adding of material to the ports or combustion chamber. Replacement valve guides may be used but must use original position. Bronze valve guides are not permitted, but thin wall bronze inserts may be used. **Dry sump systems are NOT allowed.**

On 2000c.c. S.O.H.C. Ford ("Pinto") engines with a standard head as noted above the maximum carb size will be 45 DCOE Weber or Dellorto sidedraft equivalent, with a maximum choke size of 36mm

Distributors and ignitions are free.

Wet sumps may be baffled and pick-up pipes may be modified. Oil coolers are permitted, but for safety reasons, must not be fitted in the windscreen aperture. Ideally, these should be fitted within the engine compartment, although if this is not possible, fitment within or near the rear window aperture is permitted.

No superchargers, turbochargers or any other kind of forced induction, twin overhead camshafts or fuel injection allowed. No nitrous oxide or water injection.

A metal catch tank (**minimum 1 litre capacity**) which accepts surplus oil or fumes from the engine is to be fixed in the engine compartment with a hose or similar, conveying this oil from the engine into the tank.

Hillman Imp: No engine may be used which in overbored form exceeds 1500cc. The 1200cc Coventry Climax engine is not permitted. All other modifications as detailed for Ford's are allowed.

BLMC Minis: No engine may be used which in overbored form exceeds 1430cc. All engines must be based on original BMC A-series stock blocks, i.e. ~~NO FORD ENGINED MINIS!~~ Cylinder heads must either be of the three-two port, side draught BMC design or may be of the cast iron seven port Minisport design, with four inlet and three exhaust ports, or the ARDEN 8 port head. These must remain of eight valve configuration only and use valve sizes not exceeding 37.7mm inlet and 31.0mm exhaust. Springs (not exceeding 220lb high lift specification) and valve gear must be as manufactured for use with this head by Minisport. These heads must bear the casting mark HEDMS 5034UL or (5030, 31 etc.) if the lesser specification head is used. Other downdraught or multi-port heads such as those manufactured by Arden (8 or 12 port) are NOT allowed. 'Split' Weber carburettors are allowed. Minnow or Reece Fish carbs. are NOT allowed. All other modifications as detailed for Ford's are allowed. **The Ford 1700cc Push Rod engine may be fitted into a Mini, but must remain front wheel drive and on the original Mini transmission.**

4 – BUMPERS

When bumpers are left on the car, they must occupy the positions as when first manufactured. No bumpers other than the type fitted to the car as standard are permitted, and only the original mounting brackets may be used. No reinforcement is allowed. When bumpers are removed, all brackets and other fixings must also be removed.

No other form of protection is allowed.

5 – BRAKES

Brakes must be effective on all four wheels, and may be fitted with vented or solid discs, although discs must be made of steel. No four-pot or aluminium calipers are allowed. Drum or disc brakes are allowed on the rear. Where drum brakes are used, competition linings must also be used. Bias braking systems are allowed. ABS is not allowed. Working parking brakes are **not** compulsory. Minis only: Minis may use Metro brakes, i.e. the four-pot cast iron calipers, but no alloy calipers such as those manufactured by Minisport for example.

6 – DRIVES

Rear axles must be 'live' Ford 'English' or Atlas type. No independent suspension. Minis may use a beam axle.

Clutches are free.

Gearbox – Tran-X or Quaife transmissions are acceptable but must remain in the original position. Casings must be standard but bell housing is free. Propshaft is free. Differentials must be standard Ford 'English' (or Atlas) type, but are otherwise free, i.e. they may be locked or limited slip. Where any portion of the vehicle

floor has been removed in order to facilitate diff. changes, the hole must be covered when racing with an aluminium or steel cover, held down by a minimum of four fasteners.

Hillman Imp: Independent suspension is allowed. Jack Knight or similar transaxles are allowed. Imp's must remain rear engined and rear wheel drive.

Minis: Must remain front engined and front wheel drive. Cooper, Jack Knight or similar gearboxes are allowed but any type of sequential transmission is NOT. Straight cut gears are allowed. Locked or limited slip differentials are allowed. Van or automatic diffs. are allowed.

7 - SUSPENSION

Front Suspension – the original concept must remain with the exception that compression struts or a roll bar may be fitted. Steering box/rack is free. Power steering is not allowed. ***You may replace existing wishbone suspension with suspension legs, but space framing is not allowed other than to aid fitment. Any additional space framing will be deemed illegal and the car will not be allowed to race. Please note that you are not allowed to convert from suspension legs to wishbone suspension.***

Rear Suspension, including shock absorbers, is free but **note also Rule 6 above.**

Hillman Imp: The original concept must remain (i.e. independent all round). Replacement suspension arms may be fabricated from tube but must be mounted in the original suspension pick up points. These replacement arms must be mounted using rubber bushes, i.e. no nylon

BLMC Mini: As stated in Rule 6, a Mini may use a beam-type rear axle. An X-beam member with the standard radius arms may also be used. The original 'cone and trumpet' suspension may be used. Hydro-elastic suspension may be used. Gas and/or coil-over shock absorbers may be fitted to the front or rear.

8 – TYRES AND WHEELS

Any steel or aluminium wheel may be used, with a maximum width of 10 inches. No wheel centres or rims may be reversed. Wheel spacers are allowed with a maximum thickness of 1 inch. No homemade wheel spacers allowed. Bodywork must cover the top of the wheel. Minis only: no wheel (front or rear) may exceed 13" (330.2mm) in diameter.

Tyres: Any tyre may be used that satisfies the conditions below, but please note that the organisers reserve the right to declare the use of any tyre to be outside the spirit of the formula. This rule will be reviewed at the end of each season, when the organisers may deem a one-tyre rule to be in the best interests of the formula.

Tyres may only be used which are of the racing type. No cross ply or metal studded may be used.

No tyres may be used that when measured at a point other than at the bottom of the tyre exceeds 10 in. at the surface tread width.

Tyre 'blow off' (pressure regulation) valves are NOT permitted. This rule applies whether they be of the short or extended type.

Flared wheel arches must not protrude laterally more than 3in. beyond the mean body width.

9 – WINDSCREENS & GLASS

No glass is allowed in the window or screen apertures unless it is laminated safety glass, perspex or lexan. If a windscreen is fitted, working wipers and washers must also be fitted. In any case, no glass or similar material which would restrict access to the vehicle may be fitted to the driver's door.

Perspex or lexan visors are allowed for driver protection.

All other glass must be removed from the outside of the car, and headlamp and all other apertures must be blanked off using aluminium or maximum 18-gauge steel.

An upright metal support must be welded or bolted in position in the windscreen aperture one third of the way along from the driver's side to prevent loose bonnets or wheels entering the driver's compartment.

Mirrors: A 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 shear type. A left (passenger) side mirror is strongly recommended, of the same type. An interior rear view mirror **must** be fitted.

10 – DOORS, BONNETS, etc.

Bonnets and boot lids must have a secondary fastener to keep them closed when racing. No wire fasteners allowed.

All doors must be securely closed, and may be welded or bolted shut.

All rear doors must be bolted or welded shut. Where front doors can be opened, they must have a fastener or strap in addition to the door lock to keep the door shut.

All original door pillars must be retained.

11 – SEATS

All seating and interior trimming must be removed except the driver's seat, which is free, but must be firmly fixed or bolted down. No wood or easily broken materials to be used for fixing. The only exception to the above is that a passenger seat may be fitted for use by media representatives or similar. This must still be equipped with a safety harness of the same type as that stipulated for drivers. Passengers may not be carried in actual competition.

12 – FLOOR

A steel firewall must separate the engine from the driver and the same is to separate the boot from the driver.

Four 50mm diameter holes are to be cut in the floor of the boot if the tank is fitted inside to allow any spillage of petrol to escape. There should also be extra holes anywhere fuel might lay, although the total of holes or slots must not represent more than 20 per cent of the boot floor area.

Hillman Imp: the term "boot" employed here, refers to the front luggage compartment.

13 – FUEL SYSTEM

Tanks are to be fitted in the boot if possible.

All tank filler caps must have a positive means of fixing to prevent cornering spillage. No rubber push-on caps or similar permitted. Fuel "cells" (such as those manufactured by ATL) or so-called "bag tanks" are recommended.

A fuel shut off tap must be fitted in the fuel line within easy reach of the driver.

Fuel lines that run through the body or underneath must be made of metal and securely fastened. No rubber or plastic tubes permitted.

All fuel used must be readily obtainable from the common roadside petrol station, maximum octane rating not to exceed Shell Optimax or Super Unleaded.

Hillman Imp: the term "boot" employed here, refers to the front luggage compartment.

14 – COOLING SYSTEM

All radiators or cooling containers (please see separate rule under 3 Engines regarding oil coolers) must be fixed forward of the front firewall, otherwise cooling systems are free. Aluminium radiators are allowed but must remain in the original position.

A single overflow pipe must be fitted and must terminate within 450mm of the ground.

All radiators must have a pressurised cap fitted.

15 – BATTERIES & ELECTRICAL

Batteries must be bolted or clamped down with a material that will not short or rot due to acid contamination, and must be covered with a rubber material. The preceding rule still applies even if batteries are of dry cell type.

A battery master switch must be fitted in the area of the rear left hand window, and must be clearly marked, 'ON/OFF'. If an electrical fuel pump is fitted, a fuel cut-off switch must be fitted within easy reach of the driver.

Batteries must be situated away from the driver's safety harness so that acid fumes do not rot the straps. It must not be possible for batteries to come in contact with any part of the safety harness.

Starters are compulsory and must be in working order when scrutineered.

Brake lights must be fitted onto the parcel shelf or hung from the roof inside the upper corners of the rear window aperture. The two lamps must be a minimum of 762mm (30") apart (Minis 635mm/25") and must be a minimum of 76mm (3") and maximum of 127mm (5") diameter square/rectangle. Bulbs must be of 21 Watt intensity. Lamps must be operated by the standard switch, as fitted to the car. No other switches or modifications are allowed. Centrally mounted strip-type lights are NOT allowed.

16 – EXHAUSTS

Exhausts: The Simpson MS500 silencer box is preferred. The remainder of the exhaust is free, and may come out of the rear or the side of the car. Any part of the exhaust system which passes through the driver's cockpit must be fully covered by a metal shield.

17 – ROLL CAGES

All tubes must be made of steel (i.e. alloy roll cages are not permitted) and to full FIA specification or as detailed below with 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).
- Two passenger side chicken bars (plus connecting bracing)
- The roll cage hoop feet must be welded to four 3mm thick plates, 230mm square, welded to the floor, or a piece of tube or box (38mm x 38mm x 2.5mm minimum thickness) connecting front and rear hoop feet, welded to sill or floor. Two separate chicken bars are still required.

If the cage is to be self-built, it must use 32mm (3mm thick) or 38mm (2.5mm thick) tubing.

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 the roof, and must support the A & B pillars. It is permitted to move the 'B' pillar hoop rearwards to protect the driver's head, though please bear in mind the seat should occupy its original position.

A 3mm hole must be drilled in the roll bars on the nearside front upright approx. 150mm above the floor and facing inwards so that an inspection can be made of the tube thickness. Where more than one size of tube is employed in the roll cage, then this will also have to be drilled in an accessible place to determine the thickness.

Any part of the cage which can come into contact with the driver's body must be suitably padded.

You may strengthen the rear of the turret with 2 bars supported to the roll cage.

Hillman Imp only: The cage may be extended from the dash cross bar to the top of the shock absorber/spring mounts in the "boot" area. The term "boot" employed here, refers to the front luggage compartment. These bars must conform to the same dimensions as the remainder of the cage.

RULE 18 – NUMBERS AND SIGNWRITING

The driver's allocated competition number must be displayed on both sides of the car. It must also be on the roof, with the base of the number at the nearside, or on the boot lid. Alternatively, a roof fin plate may be

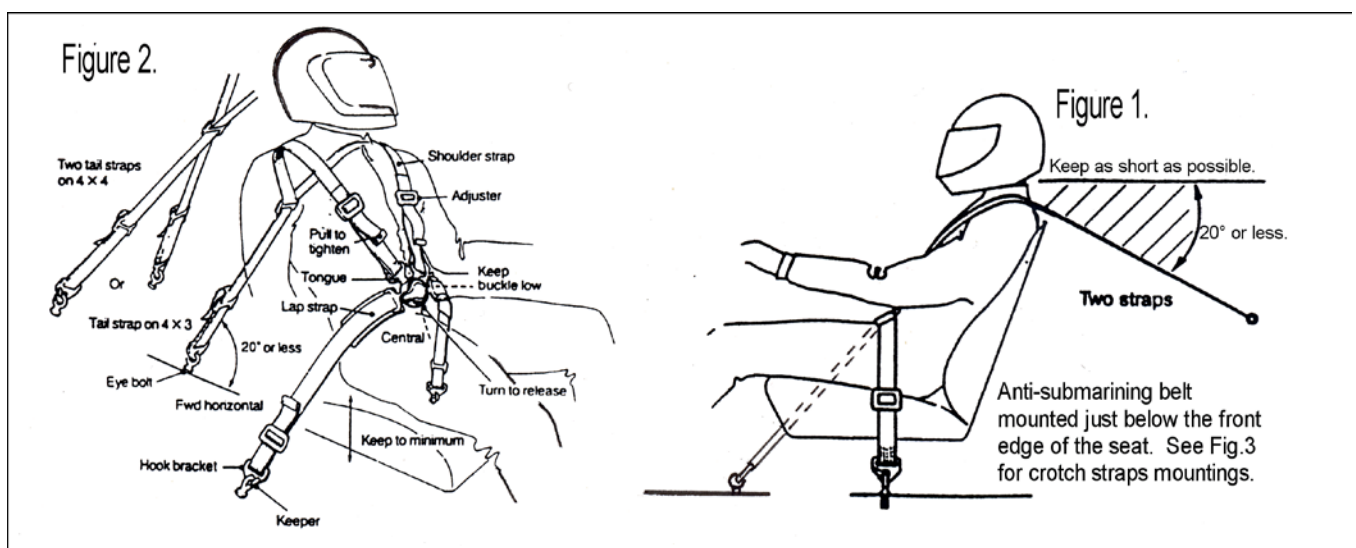
used. The minimum size of numbering (except fin plates) is 300mm high with 50mm strokes. Any colour can be used providing that it has a contrasting background. They must have a professional appearance.

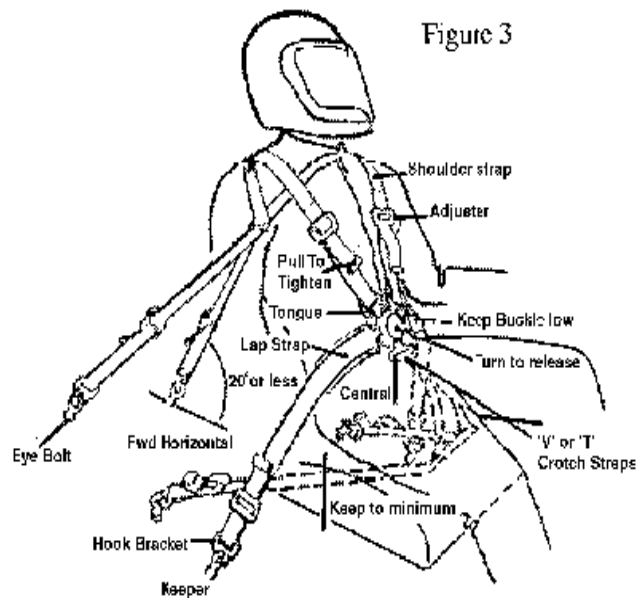
The driver's name must appear plainly on both sides of the bonnet or roof curvature, or across the sun visor, and all other signwriting must be confined to the sponsor's, mechanics' or owner's name. Professional motif paintings are allowed, **however, airbrushing is not allowed.** Advertising stickers or transfers are allowed. Stickers, drawings or wording which may be considered offensive are not allowed - the scrutineer or steward's decision is final as to what constitutes "offensive".

RULE 19 – SAFETY EQUIPMENT

- **Plastic, Polycarbonate or Tri-Composite helmets (i.e. British, European or Snell) of any type are not permitted.**
- **Helmets must be of a minimum standard as directed by British Oval Racing Safety Executive (B.O.R.S.E). These are BS6658/85 Type A, BS6658 Type A/FR, FIA8860-2004, Snell SA2000, Snell SA2005, SFI Foundation 31.1, SFI Foundation 31.2 or E2205 European Standard. It is important that the helmet fits the driver correctly. Shatterproof goggles/visors must be worn although tinted visors are not advisable.**
- Neck braces are recommended.
- Fireproof balaclavas are **MANDATORY** and must be marked appropriately.
- Fire retardant gloves are **MANDATORY** and must be marked appropriately.
- A minimum of 3" (75mm) wide safety belts (1.75" (40mm) sub-strap) are mandatory. This must be a full five point buckle release harness (including NASCAR type) with sub-strap and must be fitted and bolted to the floor and/or the roll cage. Shoulder belts with a sternum protection latch are highly recommended. The sub-strap must be used at all times and all belts must connect to the quick release buckle. In the case of NASCAR lever latch buckles it is advisable to fit a secondary means of detent to prevent overall sleeves accidentally unhooking buckles during racing. A small section of Tubegrip elasticated bandage slid over the hooked buckle serves this purpose. Special attention must be paid to the condition of seat belts and fixings once fitted. An extra bar is to be fitted to roll cage behind drivers seat approx 4" below shoulder height of driver. Your seat belts may be fixed to this bar. The bar is to be of roll cage material specification.

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





- Drivers must wear bright coloured racing overall type clothing of flame retardant Proban or a high specification material and this must be maintained in a clean and tidy condition in view of the public. N.B. If wet weather clothing is used this must be worn IN ADDITION TO and NOT INSTEAD OF the regulation flame retardant overall type of clothing described above.
- A quick release cloth window net must be fitted to the driver's door window aperture. The netting should have holes not larger than 7.5cm or 3" wide. It should come down level with the steering wheel, and should be flexible and easily removable separate to the movement of the door.
- 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.

RULE 20 – RULES OF RACING

Racing is to be strictly non-contact. Minor instances of contact, where deemed to be avoidable or deliberate, will be punishable by fines.

Rolling starts shall be used.

Heats shall be of 15-20 laps duration, finals 20-25 laps, and meetings shall consist of two such heats and one final, all to be agree at the Promoters discretion.

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

For further information contact :

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**REVISED RULES FOR 2010 in BOLD/ITALIC PRINT
ITEMS MARKED STRIKETHROUGH ARE NO LONGER ALLOWED.
2010 Classic Hot Rod Technical Specifications, Issue 2, Dated 1st February 2010.**