



# 2019 STOCK ROD SPECIFICATIONS

## EFFECTIVE 18<sup>th</sup> APRIL 2019

v1.2a

This formula is NON-CONTACT and cars should be prepared with a professional racing appearance. This standard is required to be kept up throughout the driver's racing season. Cars with tatty, dented and badly battered panels will not be passed by the scrutineer. With effect from 1<sup>st</sup> March 2019, ORCi Stock Rods will also incorporate other agreed similar formulas, E.g. 'Super 1400 Rods'. All cars/components must be UK specification only, no sports or competition components permitted unless otherwise stated in this document.

### 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. 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 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, **then the ORCi Promoters group** will exercise **their** judgement **in ruling on conformity. The interpretation made by the ORCi Promoters group pertaining to ALL rules** will be final in any dispute. Clarification on any item can be sought from: **The Secretary, ORCi, Technical Committee, PO Box 9889, Birmingham, B43 6WA.**

*N.B. Drivers are reminded that scrutineering checks can be carried out at any time, and most certainly at official championships. 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 seven 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.*

### 1. CARS

The only cars eligible for use are those set out within these specifications and they must be raced with mechanical and constructional specifications as produced when new (for the UK market) with the original engine capacity not exceeding 1400cc. Anyone wishing to race any car other than those listed may request permission from the ORCi Technical Committee as detailed above. Any fuel injected 1400cc cars will have to use **a** carburettor and manifold **from** within their range, but not from a larger cc vehicle.

1300 cc CARS	VENTURI SIZES
Ford Fiesta 1300 MK1 – MK5 (OHV or CVH)	23/24
Nissan Micra	20/27
Toyota Starlet 1.3 1290cc – Standard 1300cc Carburettor	23/26 (throttle linkage may be altered)
Toyota Starlet 1.3 1290cc – Weber 32/36 DGV/DGVA Carburettor	26/27 (throttle linkage may be altered)
Vauxhall Corsa / Nova / Tigra 1300cc	Pierburg 2E3 Twin Choke (20mm / 24mm) + (8mm / 7mm pre-atomiser)
1400 cc CARS	VENTURI SIZES
Citroen AX (1360cc), Saxo, C2 Fiat Uno (1301cc), Uno (1372cc) Ford Fiesta (1392cc) Peugeot 106 (1360cc), 205 (1360cc), 206 (1400cc), <b>207 (1400cc)</b>	Solex 32/34 Z2
Vauxhall Nova / Corsa B / C / D / Tigra 1400cc	Pierburg 2E3 Twin Choke (20mm / 24mm) + (8mm / 7mm pre-atomiser)

- It should be noted that some venturi sizes may vary slightly from those specified by the manufacturer. In these cases drivers should use the above sizes.
- All carburettor/venturi sizes for the above are to be the original standard part.

## 2. ENGINES

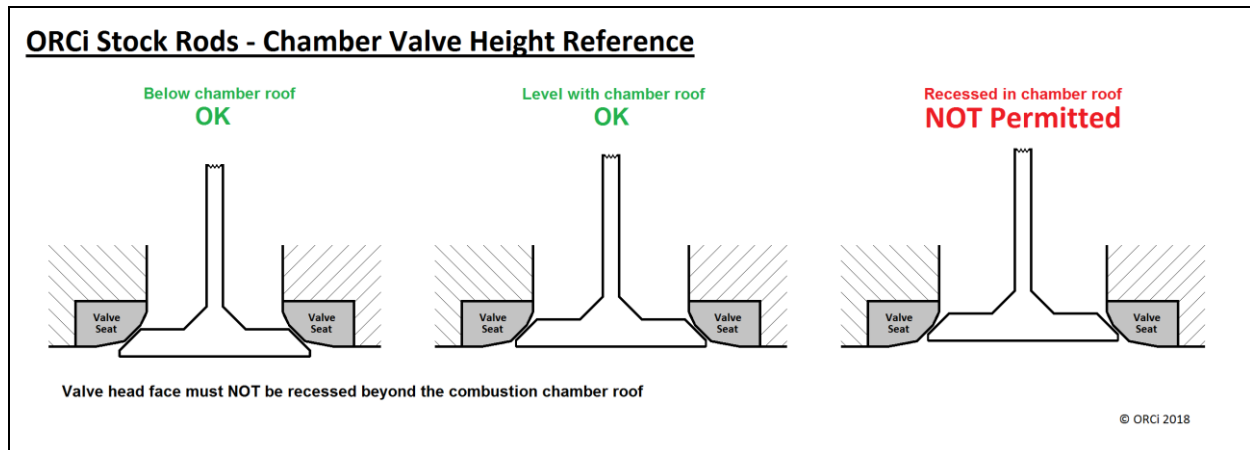
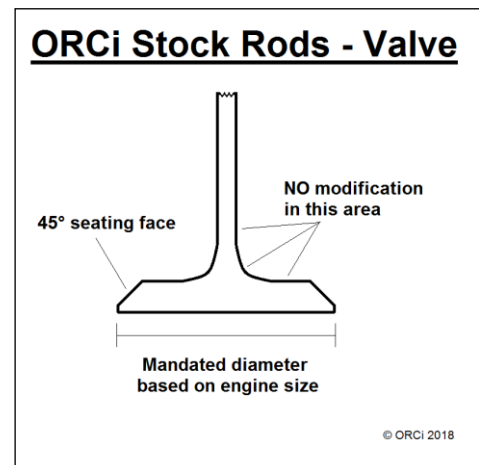
- Engines must be as produced by the manufacturer, two valves per cylinder, i.e. no twin carburettor set ups, where not originally specified. No fuel injection or turbo charging is permitted.
- It is permitted to use an engine or block assembly from another model of the same manufacturer if all technical specifications are the same.
- The interchanging of components between the 1300cc and 1400cc engines from the same manufacturer is permitted to include only the following items without modification (unless expressly stated otherwise): manifold, timing gears, water pump, flywheel, distributor, sump, oil pick up pipe and cambox.
- Engine mountings to remain standard, with the exception of Front Wheel Drive cars where the top engine mounting (by valve cover) may be solid. Corsa C and Citroen C2 may modify engine mounts to fit older engine, but engine must stay in central position – i.e. not to gain an advantage.
- The external face of the engine maybe painted.
- All external nuts and bolts may be changed to non-original (but not high tensile), with the exception of the cylinder head bolts which must remain of standard type.

### Cylinder Block

- Nominal over-boring to a maximum of 0.060" (1.5mm) is permitted. Skimming of the block on the head gasket surface face only is permitted. No other modifications to the block are permitted. Only one standard gasket can be used at any time.
- Oil holes on the crankshaft maybe relieved.
- To allow the interchanging of the small and large Vauxhall flywheel the face of the starter motor aperture maybe altered.

### Cylinder Head

- Cylinder heads must remain standard and unmodified; however the skimming of the cylinder head on the head gasket surface only is permitted.
- Polishing and/or gas-flowing of ports, valve-seats, and/or combustion chambers is NOT permitted.
- A three-angle cut is permitted on the steel valve seat insert only.
- The dimensions of the angle valve seat inserts must be as per the manufacturer’s original specification; however the width of the 45-degree seating face is free.
- The following angles only are permitted where a 3-angle cut is used:
  - 60-degrees,
  - 45-degrees (seating face),
  - 30-degrees.
- An over-cut (sometimes referred to as a kiss-cut) of the 30-degree angle is accepted to take account of manufacturing imperfections in cylinder heads and variation in the tooling used, however, the valve head MUST remain within height limits specified below.



- The valve may be raised in the combustion chamber, away from the piston, but the face of the valve MUST be level with or below the level of the combustion chamber roof. The face of the valve must NOT be higher than the combustion chamber roof. See illustration (**above**) for reference.
- Raising the valve in the chamber may only be achieved by either (i) re-cutting the 45 degree seating face of the steel valve seat insert in the head, or (ii) grinding the 45 degree seat on the valve itself. The overall valve diameter MUST remain as per the manufacturer's original specification. Any other modification to the valve head, stem or profile is NOT permitted. See illustration for reference.
- The valve length must remain within standard manufacturer's tolerances (i.e. the length as supplied to the industry, not a minimum service length). E.g. Vauxhall 104.25mm-105.35mm.
- The valve head diameter must remain as per the manufacturer's original specification within a tolerance of +/- 0.2mm.
  - 1300cc engines: inlet valve diameter 33mm, exhaust valve diameter 29mm
  - 1400cc engines (carburettor head): inlet valve diameter 33mm, exhaust valve diameter 29mm
  - 1400cc engines (injection head): inlet valve diameter 38mm, exhaust valve diameter 31mm
- ~~Valve springs must remain as standard, and must be the original manufacturer's part. Express written permission has been granted ON AN EXPERIMENTAL BASIS, for Kent part no. VS30 and Piper part no. VSSAST13. A SECONDARY REVIEW IS DUE ON OR BEFORE 1 DECEMBER 2018.~~

- **The use of standard original single valve-springs and caps is permitted on all engine types.**
- **Replacement of the standard valve springs and caps is permitted with the following items ONLY:**

Engine	Kent Part No.	Piper Part No.
1.3 8v and 1.4 8v	VS30	VSSAST13
1.4 16v	VS55	VSSCOR

- The following must not be machined, repositioned or modified in any way: valve caps, collets, valve guides, spring seats and valve stem oil seals, with the exception of Corsa/Nova lash caps which may be of competition type.
- Solid lifters may be fitted. Hydraulic lifters may be welded or modified to be solid and shimmed or adjustable by means of a locking nut prior to fitment only. Hydraulic lifter pins may be removed.
- If the oil feed to the cylinder head becomes misaligned when the head is surfaced it may be re-aligned.
- Oil holes on the cylinder head maybe relieved.
- Head bolts may be shortened or washers may be used, but the bolts must remain the standard manufactured part for the engine being used.
- Bronze valve guides are NOT permitted unless fitted as standard, but it is permitted to use a thin wall bronze sleeve in existing guide.
- Inlet and exhaust valve seats may be lowered **into the head**, (i.e. moved away from pistons) but the valve head must sit level with or below the combustion chamber roof (**See illustration above for reference**).
- Fuel injected engines may be used, but **the** injection inlet manifold must be replaced with a conventional carburettor version within the manufacturer's range. Only locating holes and gasket may be altered to allow manifold to fit. (Manifolds and carburettors from larger cc version cannot be used.)

### Pistons

- Manufacturer's pistons or original replacement pistons must be used and must not be altered in any way (this includes all four pistons with valve indents) other than for balancing as specified below, **or with the following exceptions.**
- **Nova/Corsa** – If a small valve cylinder head is used, it must be with original compression ratio pistons (i.e. 9.4..1), the big valve cylinder head may use 9.4..1, 9.8..1 or 10.0..1.
- **Citroen/Peugeot 1.4, 8v Engine – It is permitted to machine valve recesses in to the piston crown, to a maximum depth of 0.141in/3.5mm, to facilitate the use of a higher lift camshaft.**

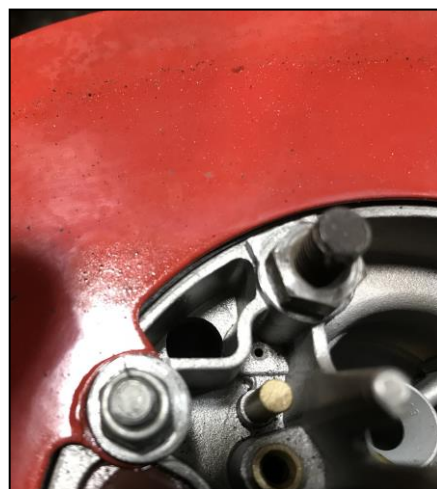
### Camshaft

- The camshaft may be changed to that of a competition type but no other parts may be altered to accept the camshaft other than those permitted within these rules.
- The only exception to this is for the Vauxhall Nova/Corsa engine where the cambox to cylinder head surface of the cambox may be surfaced (level).
- Offset dowels, drilling and pinning are permitted. Use of a vernier timing wheel is permitted. Oil holes on the cam carrier maybe relieved.

### Carburetion

- Must remain as standard and although jets and needles are free, they must remain fitted. (A list of venturi sizes and carburettors are detailed in rule 1). Trumpets or stubs are not allowed on carburettors.

- Choke butterflies, cold start equipment and economy devices can be removed.
- The V.V. carb on C.V.H. engines may be replaced with a Weber 32 IBF. A 32 DHA carburettor is allowed on Kent Engine. A 32 DGA or 32 DGR carb is permitted on either the C.V.H. or Kent engine.
- Throttle **butterfly linkages** may be modified to open together.
- **Throttle butterflies, and their shafts and retaining screws, must remain standard and unworked.**
- Competition air filters are permitted, however no trumpet, cone or guided airflow types are permitted. It is not permitted to alter or modify in any way an air filter to assist with airflow.
- The air filter base must be fitted level with the top of the carburettor (see photo).
- Any hole maybe blanked off but ~~no~~ re-drilling of any other parts is **NOT** permitted.



### Carburation (for Toyota Starlet)

- Only the standard Weber 32/36 DGV or DGVA carburettor may be used with a maximum of 26mm and a 27mm sized chokes. No polishing or re-profiling is allowed. No modifications to the carburettor's body or original design. The interchanging of the carburettor top from other Weber models is not allowed.
- All gaskets must remain standard and original. A single original spec insulator block must be fitted between carburettor and inlet manifold, with two gaskets; approximate total thickness = 6mm.
- Main jets, primary and secondary jets, auxiliary venturi and emulsion tubes may be changed but must face downwards towards the butterflies. Accelerator pump jets may be changed but face downwards towards butterflies. Chokes may be modified to open together and replacement spindles may be fitted with standard screws. Cold starting devices may be removed with retaining lugs and subsequent holes blanked off. Air and fuel galleries may not be enlarged or modified, and fuel may enter on either side. Floats may not be modified or weighted, and must control the fuel flow. Needle valves may not be larger than 250, and not enlarged or modified. The power valve must be fitted in the base of the bowl, but may be sealed off, and the diaphragm may be removed. No trumpets are allowed. It is permitted to use a grub screw or similar device to fix the auxiliary venturi to the carburettor body. Top end enrichment devices may be blanked off or modified. A secondary fixing on the fuel inlet feed line is required. The Inlet manifold must be standard & not faced to alter the angle of the manifold to the carburettor. No inlet port matching of the carburettor to the manifold or the manifold to the head. No material may be added or removed from the gas flow area, it must be as standard. An adaptor plate of 15mm maximum thickness must be bolted or welded to the inlet manifold to enable the manifold to accommodate the carburettor.

### Inlet & Exhaust Manifolds

- Must be original standard parts from the manufacturer's range. No fettling, porting or polishing.
- The Vauxhall Corsa/Tigra may use the Nova twin outlet exhaust manifold. (See cylinder head.)
- Toyota Starlets may use an after-market four-branch exhaust manifold.
- Exhausts with a hot spot may be blanked off. Water circulation holes may be blanked off.
- Downpipes are free.
- Adaptor spacers from the inlet manifold to the cylinder head can be tapered to allow the carburettor to sit level. The plate is regarded as an extension of the manifold to allow it to fit, so the port holes on the plate must be within 4mm of the size of the holes on the manifold. There must be no tapering from the manifold size to the head size.
- Either cathedral port style 1300cc or square port style 1400cc inlet manifolds are permitted for use. ~~and~~ **The manifold** locating holes and gasket may be modified, **ONLY by slotting**, to allow for fitment. **A 1400cc gasket is permitted to be used with a 1300cc manifold to ease fitment.** ~~No~~ Machining, polishing or re-profiling of any ports **is NOT** permitted. Water by-pass holes maybe blanked off, **either by welding, or the use of a plug. Removal of external webbing material between No.3 and No.4 cylinder ports for ease of manifold removal, due to the location of the breather pipe, is permitted.** ~~For 2019, this rule will be reviewed to consider a 1300cc manifold to only be used on a 1300cc engine and a 1400cc manifold to only be used on a 1400cc engine.~~

### Distributor

- Must be standard Vauxhall, Delco, Bosch Hall Effect or Bosch Permanent Magnet type and not ECU type. No sport or competition parts permitted.

- The mechanical and vacuum advance may be altered. The vacuum advance may also be removed.
- No electronic ignition is permitted unless fitted as standard.
- Where the engine is not fitted with a distributor as standard and it is not possible to fit a distributor from the same vehicle manufacturer, certain types of Lumenition will be allowed to be fitted.
- The Renault Clio 1.4 may fit Lumenition Kit No C410 ECU. Top line mapped only. Max advance by 3750 rpm ignition may be advanced only; no retarding. Whatever advance figure appears at 3750 rpm must be continued to end of rev range.
- **On the Toyota starlet it is permitted to replace the standard CB distributor ignition system with a standard electronic variant supplied direct from the manufacturer, Lumenition. The permitted part numbers are: Kit FK605 (for the Distributor), and PMA50 (the Amplifier).**
- Rev limiters are allowed.
- On Vauxhall engines, due to the ball bearing supplied with camshafts being larger than the hole in the rear of the camshaft, the distributor shaft may be shortened for fitment.

### Balancing

- Balancing is permitted by spot machining only. Spot machining means either hand grind, drill or machine. When balancing pistons and con rods, at least one of each must be as original.
- The flywheel and clutch assembly may be balanced.

### Con Rods

- **The machining of con rods, including the caps, is NOT permitted, except for balancing as detailed above.**
- ~~Any big end bolts may be used, but con rods must not be machined to accommodate them. The Con rods and caps may however be numbered for identification purposes.~~
- **Standard original con-rod bolts may be used.**
- **Original con-rod bolts may be replaced with the following permitted ARP bolts ONLY:**  
**ARP Part No. 109-60002**  
**ARP Part No. 109-60003**

### Flywheel

- Lightening of the flywheel is permitted.

### Sundry

- Oil coolers are permitted, but must be within the confines of the engine compartment.
- Either electric or water pump fan is permitted but not both.
- Standard sumps must be used and can be baffled. Pick-up pipes can be modified within the confines of the sump. No outside alteration is permitted.
- The engine must be fitted with a catch tank of 1 litre minimum capacity connected to the engine breather system and fitted in the engine compartment. A maximum of three engine breather pipes are permitted.
- Bottom crankshaft pulleys are optional.
- **Vauxhall – Machining of the Vauxhall crankshaft pulley is permitted.**

### Transplants

- A Fiesta may use the 1300 x-flow engine to replace the CVH, and a Nova engine may be used in a Corsa. No other engine transplants are allowed unless written approval is given in writing from the ORCi Stock Rod Sub Committee.
- For Citroen and Peugeot TU3 engine may use the multipoint injection engines and manufacture an inlet manifold. This manifold rule will be reviewed in the future with the intention of proposing one specific manifold. The carburettor must still be a 32/34 Z2 Solex.

### 16v Engines

- A 1400cc engine can be run with the exception of HONDA/ROVER models. The engine must be standard to the car. The ECU must be standard to the car but must not exceed 33° when checked with a timing light.
- The fuel injection must be removed and an inlet manifold manufactured to fit the carburettor which must be a Weber 32/32 DMTL. This manifold rule will be reviewed with the intention of proposing one specific manifold.
- The engine must remain standard and unmodified to include flywheel. There will be a buying price for these engines of £750 which means any driver racing on the day may put a protest in to buy another

driver's engine or the Promoter may buy the engine at this price. The engine must be complete including clutch and flywheel, but excluding carburettor and inlet manifold.

- The idea is to encourage the introduction of more up to date cars to the formula. The 1400cc engines can be used at recognised ORCi Championship events in standard form. The ECU must have a buying price of £50 at any race meeting. Any driver refusing to sell the ECU for this price at any event will deem the part illegal and the driver will receive an immediate ban of 12 months. Any driver found to have tampered with an ECU, or be using an ECU that has been tampered with, will receive an immediate ban of 12 months.

### Experimental Engines

- ***In an effort to reduce costs for drivers, and to encourage more to join the formula, it has been decided to introduce on an experimental basis the low cost engines detailed below.***
- ***The use and performance of these engines will be constantly monitored throughout the racing season. The promoters reserve the right, at any time, to introduce a performance control measure such as, but not limited to, the requirement to have a restrictor plate fitted to an engine.***

### Permitted Engines

- ***It is permitted to use the Citroen/Peugeot/Vauxhall 1.6, 8v or 16v engines subject to the following conditions:***
  - ***A manufactured / modified replacement inlet-manifold, adapted to mount a 32/34 DTMTL Weber carburettor, must be used to revert from original fuel injection systems. (The manifold will remain under review, and, subject to availability, a specific control manifold may be introduced in the future).***
  - ***These engines must be fully compliant with the "standard manufacturer specification" and engine code as fitted in vehicles for the UK market. Components may be replaced with original standard or OEM direct equivalent specification parts. Higher performance variants are not permitted.***

### Vauxhall Engines

- ***16v Cylinder Head – The Vauxhall 16v cylinder head must be the triangular port pattern design only. (See image to the right)***
- ***16v Ignition – Only the 2D type ignition is permitted.***



### Citroen/Peugeot Engines

- ***ECU - The parameters and configuration of the engine ECU must remain as standard manufacturer supply.***
- ***ECU - The Promoter reserves the right to require a driver, at any time, to exchange the ECU with one supplied by the promotion. If it is suspected that an ECU is or has been reprogrammed remotely the promoter can demand that the driver encloses the ECU unit within a metal RF screening device. (Consideration is currently being given to introducing a read only control ECU in the future).***

### Transmission

- ***Monitoring and evaluation will be undertaken on the use of these engines and transmission unit combinations.***
- ***Permitted gear ratios and differentials will be specified, following evaluation, to ensure the gear ratios used are commonly available across each of the three specified manufacturer ranges and are reasonably priced.***

### Points, Prize-Money and Championships

- ***Drivers using these experimental engines will receive points and prize money for normal race meetings.***
- ***For championship events, the staging promotion will reserve the right to grant/refuse driver entry to race as appropriate.***

## 3. TRANSMISSION

- The gearbox, gearbox mountings and final drive must remain standard and complete, but gears and ratios from the same manufacturer may be interchanged and the gearbox and final drive may be interchanged within manufacturer's range. The removal of the speedo drive is not encouraged, but if removed, there must be a satisfactory capping to prevent leaks.
- The differential assembly may be locked by way of welding. Limited slip differentials are not permitted.
- All of the above exceptions must be achieved without machining or modification of the standard parts.
- Drive-shafts must be original as fitted to the make and model and must remain standard. The fitting of spacers is not permitted. Drive shafts from automatic versions are not permitted.

- Prop-shafts may be modified or interchanged from manufacturers range.
- Gearbox mounts must be original and may be strengthened but must occupy their original position.
- Standard gear linkage only is permitted, no aftermarket items such as rose joints allowed.

#### **4. WHEELS**

- Wheels of any type may be fitted to the car and may be widened to a maximum of 6" by inserting a steel band, no wider types permitted. Manufactured steel wheels may be used e.g. Weller.
- Maximum wheel diameter is 13".
- Alloy wheels are permitted and these wheels may be repaired. Any repairs will be checked by the scrutineer whose decision will be final on the quality.
- No wheel spacers allowed, whether welded to the wheel or not, unless fitted as standard. The top of the wheel and tyre must be covered by the wheel arch.
- For users of the Citroen AX-1360cc—the 3 stud wheel fixing may be changed to 4 stud using Peugeot components or any other manufacturer's standard hubs.
- Wheel studs are free.

#### **5. TYRES**

- The only tyre permissible is the Yokohama 185/70 x 13 A021R (rebranded as 170/590 Advan A021R) Compound No T567.
- Gaiters on tyres are not allowed. Additional tread pattern may not be cut into tyres.
- Tyres can have the feathering removed.

#### **6. FRONT SUSPENSION**

- This must be fitted as original and in standard manufactured form. The only modifications that are permitted are noted below.
- Chassis pick-up points must remain in their original location. Bolts are free.
- Negative/positive camber or caster on front wheels only is permitted. This may be achieved by modification of original standard parts only.
- Bottom arms may be extended and adjustable, locating holes on suspension components and top abutment plates may be elongated.
- Caster adjustment is permitted and may be achieved by modification of the original standard anti-roll bar / locating rods and bushes and may be adjustable. A tolerance of + or - 2" (50mm) on nearside, 1" (25mm) on offside from original wheelbase will be permitted.
- The style of hub used must be the same on the nearside and the offside
- Camber on front wheels is permitted: free on the passenger side and a maximum of 5 degrees positive on the driver's side.
- A strut reinforcement bar may be fitted to the front top mounting and may be secured by means of a separate bracket.
- A front strut brace may be fitted and may be triangular in shape. This may be bolted or welded to the bulkhead or welded to the roll cage.
- Cars fitted with torsion bar suspension may use any rate of torsion bars but their profile must remain as manufactured.

#### **Shock Absorbers - Front**

- Up-rated versions of the original dampers may be used and may be strengthened but must not be adjustable with the exception of an adjustable version being permitted if the adjuster is removed or disabled. The lower abutment plate must remain in its original position and the unit must mount as the original and to the original mountings and must not be modified to achieve camber, with the exception of locating holes.
- Corsa C hubs may be altered at the bottom i.e. thinned to accept Nova or Corsa B struts.
- Corsa C hubs are permitted for use on the Corsa D.
- Strut casings and inner rods of unequal length may be used.
- All suspension components must mount to body shell in the original style – however strut top mounting holes may be elongated to achieve camber.
- Front suspension spring seat can be modified to accept different width and length of springs.
- ***The use of an adapter at the top, to centralise a smaller diameter spring, is permitted.***

- The use of nylon, **aluminium**, or rubber packers (~~only~~), between the **lower** spring platform and the base of the spring is permitted. These must be closed and not open, to prevent them from falling out.
- The original top must be used but can be modified (for example, a “top hat” style strut top mount) to accept different spring diameters.
- Top and bottom strut mounting points must be used and fitted as standard apart from slotting holes.
- The spring seat must be welded.
- Unless stated above, no metal may be added to suspension parts.

## **7. REAR SUSPENSION**

- Rear axle locating rods must remain standard length and bushes as original. For vehicles fitted with a rear beam axle, any repairs carried out to the rear axle beam should be done by simply resetting the beam with hydraulic equipment, always within the manufacturer’s tolerances.
- Springs are free and must be retained by wire, tie wraps or clips at one end only.
- **The use of an adapter at the top, to centralise a smaller diameter spring, is permitted.**
- The use of nylon, **aluminium**, or rubber packers (~~only~~) up to a maximum thickness of 20mm, between the **lower** spring platform and the base of the spring is permitted. These must be closed and not open, to prevent them from falling out.
- **The use of a welded “top-hat”, or internal tube, to prevent the rear springs from becoming detached when the rear of the car unloads on entering the corner is permitted.**
- No competition shock absorbers are allowed on the rear. Gaz or Shock Tec type rear shock absorbers are allowed to a maximum price of £45 inc. VAT and must be commonly available. (In the case of Citroen or Peugeot £55 Inc. VAT). Shock absorbers must be in their original form and unmodified.

## **8. STEERING**

- Steering rack arms may only be shortened or lengthened i.e. the nearside arm may be lengthened and the offside arm may be shortened. This only be done by modifying the arm itself on the thread end and not the inner steering rack components. The steering rack must occupy its original position.
- No quick racks or devices that act as a quick rack are allowed. A polybush is permitted on the rack mounting ONLY – rack mounting may be strengthened.
- The steering column height may be adjusted to suit the driver. It is recommended that the upper retaining bracket of the column be strengthened on some cars for safety. The use of quick release steering wheel mechanisms is permitted.

## **9. BRAKES**

- Brakes must be as original and work on all wheels, complete with a working handbrake.
- No biased braking or modification to brake compensator(s) permitted.
- No hydraulic handbrakes except where standard.
- No competition parts with the exception of competition pads may be used.
- Brake components from the same manufacturer’s range may be used, but without modification of standard parts and may not be from a larger cc vehicle e.g. no parts from a 1600cc may be used.
- For front wheel drive cars fitted with load dependent brake pressure regulating valves, the valve must **be retained and remain unmodified**. ~~not be modified, but~~ The connection from the suspension to the valve may be adapted or removed, and the regulator lever arm secured in any position. (~~You may remove or change the rear brake pressure valve – adjustable type not permitted~~).
- **Removal or changing of the rear pressure regulator valve is permitted, however any replacement must be of the fixed, non-adjustable type.**
- **If fitted with an ABS type braking system, the system MUST remain standard, and plumbed as originally designed/installed.**
- **The original ABS valve block MUST be retained, and the use of additional “T” pieces or other components to alter the design of fluid flow is not permitted.**
- **The alteration of any system to introduce left-to-right brake bias is NOT permitted.**
- **Any original ABS system piping may be replaced by a conventional pre-ABS system, however the replacement system may be plumbed for front-to-rear bias control ONLY.**

## **10. BODYWORK**

- There must be no drilling of holes on any part of the shell, sub-frame, axle, suspension and no removing of any part of the chassis leg at the rear.



- Bodywork and internal structural stiffeners must remain as production with the following exceptions ONLY:
  - The driver and passenger front seat mounting stiffeners may be removed (see image 1)
  - The internal A post stiffener maybe removed (below the waistline as defined below) to allow rollcage hoop fitment, however the rollcage A post must be re-tied back to the A panel, to a minimum of 200mm in height using equivalent thickness metal plate as was removed.
  - The internal B post stiffener rear face only may be removed (below the waistline as defined below) to allow the rollcage hoop to be fitted, however the rollcage B post must be re-tied in to the door shut/latch panel to a minimum of 200mm in height using equivalent thickness metal plate as was removed.
  - Two holes maybe drilled out of the B post shut/latch panel to allow fitment of the rollcage chicken bars. These holes must not have a diameter in excess 20mm more than the tube i.e. 32mm tube, 52mm hole.
  - The internal structural stiffeners maybe removed from the inner door panels.
  - The internal structural stiffeners (to include the rear face of the B pillar) maybe removed from the rear quarter panels, but no higher than 40mm down from the window aperture (see image *right above*).
  - Body-shells which have previously had the internals removed above the waistline must be corrected – this is taken as being 40mm below the window aperture and above.
  - Tops of tailgates must remain in place and outer tailgate skins must remain in full.
  - The bonnet internals maybe removed.
  - Wheel arches may be cut away to accept a wider rim. If the body is cut then 2" (50mm) wheel spats of mild steel must be fitted.
- Seam welding is not permitted anywhere on the car with the exception of the doors AND WHEEL ARCHES. Tack welding is allowed - this is defined as being 2" (50mm) weld with a 6" (150mm) gap before next weld.
- No strengthening may be added, but on cars where suspension mountings or sub frame locate on a weak part of the body suitable strengthening may be added.
- All doors must be fixed when racing.
- No spoilers or aerofoils except where fitted as standard to the make and model of the car.
- **Door Skirts**
  - Door skirts may be fitted but these must tie into the lower edge of the wheel arch and must not be deeper than 2" (50mm).
  - **Door skirts must be constructed from mild steel panels only may be used, with a maximum thickness of 16 SWG/1.62mm.**
  - The ~~width of the~~ door skirts must not be wider than the **width of the** wheel arch.
  - Holes are permitted in ~~side~~ door skirts but must be equal **in size and number** on both sides **of the car.**
- ~~Gusseting is permitted between the centre line of the front and rear axles, where the side skirt joins the wheel arches.~~
- **Gussets**
  - **Optional gusseting of the door skirts to the wheel arches is permitted on both sides of the car, in the 4 areas where the door skirts meet the front and rear wheel arches.**
  - **Gussets must be constructed of steel plate, no thicker than that permitted for the door skirts.**
  - **One 1" (25mm) hole must be drilled in each gusset to enable the checking of material thickness.**
  - **All gussets must be triangular in shape with a maximum permitted size of 6" (150mm) in length in both the horizontal and vertical planes.**
- Cars fitted with **an** integral rear panel and bumper may substitute them for a metal panel of original shape and size.



- A single 2" (50mm) diameter inspection hole must be included in bumpers on the driver's side.
- Any replacement panels must be of the original gauge with a single 2" (50mm) diameter hole drilled for inspection. Front panels must not exceed 1.2mm (0.048) or 18 gauge. FRONT CHASSIS MUST NOT BE EXTENDED, EXCEPT FOR A MAXIMUM OF TWO VERTICAL 18 GAUGE FLAT PLATES FROM CHASSIS TO FRONT PANEL. THIS MUST NOT BE BOXED IN ANY TYPE OF WAY.
- Holes are permitted in the front panel between the headlamp apertures for cooling purposes only. Where two sections are used to form a front panel, the overlap must not exceed ½"(13mm).
- Corsa C Only: You may support the wings by use of one 12mm (maximum) steel tube (max 2mm wall thickness) each side of the car, this must be attached by using a maximum 50mm square plate (maximum thickness of 2mm) on each end. This support must be bolted and not welded.
- Corsa D may use the steel inner bumper protection from a Corsa C.
- Repairs to front wings and flitch panels must be carried out with material of original thickness, not 18 SWG. Where front panels are non-original of 18 SWG, only the front section may be of that material; the "wrap-around" section to join it up to the wings and the inner flitches etc. must all be constructed with the original thickness of material which is usually 22 or 24 SWG. Where front panels are non-original, the shape reproduced must be the original silhouette of the car when the original bumper is removed. Front panels must not incorporate a front bumper in the shape produced. Likewise the flitches must follow approximately the original contour, not folded with angles to provide strength. Where bonnet slam panels are replaced, lightweight tube or box (50mm x 25mm or 25mm x 25mm, with 1mm or 1.5mm wall) must be used. Cross ties must be 16-18 gauge, 1mm wall box section. Panels must not be doubled.
- Where headlamp apertures are filled, they must not have more than a 25mm overlap.
- Additional gussets must not be added to provide strength to chassis legs etc. Existing apertures, (headlamps etc.) must not be strengthened by any means other than you may pop-rievet a maximum of 18 SWG alloy plate as a blanking cover.
- NO STAINLESS STEEL OR FOAM FILLED PANELS ARE PERMITTED. EXTRA HOLES OTHER THAN THOSE STATED ABOVE ARE NOT PERMITTED.
- The rear window aperture of a Vauxhall Tigra (which is viewed from the side elevation only) may be filled with metal or Fibreglass.
- \*\* Where replacement panels are unobtainable, similar panels from other makes of vehicle may be used.
- Inner and outer sills must remain complete and as production.
- **The fitting of an optional sun-visor strip across the full or partial width of the top of the windscreen aperture is permitted.**
- **The fitting of an optional water deflector to the bonnet of the car is permitted. Any such deflector must be securely fitted, and constructed from a shatterproof material.**

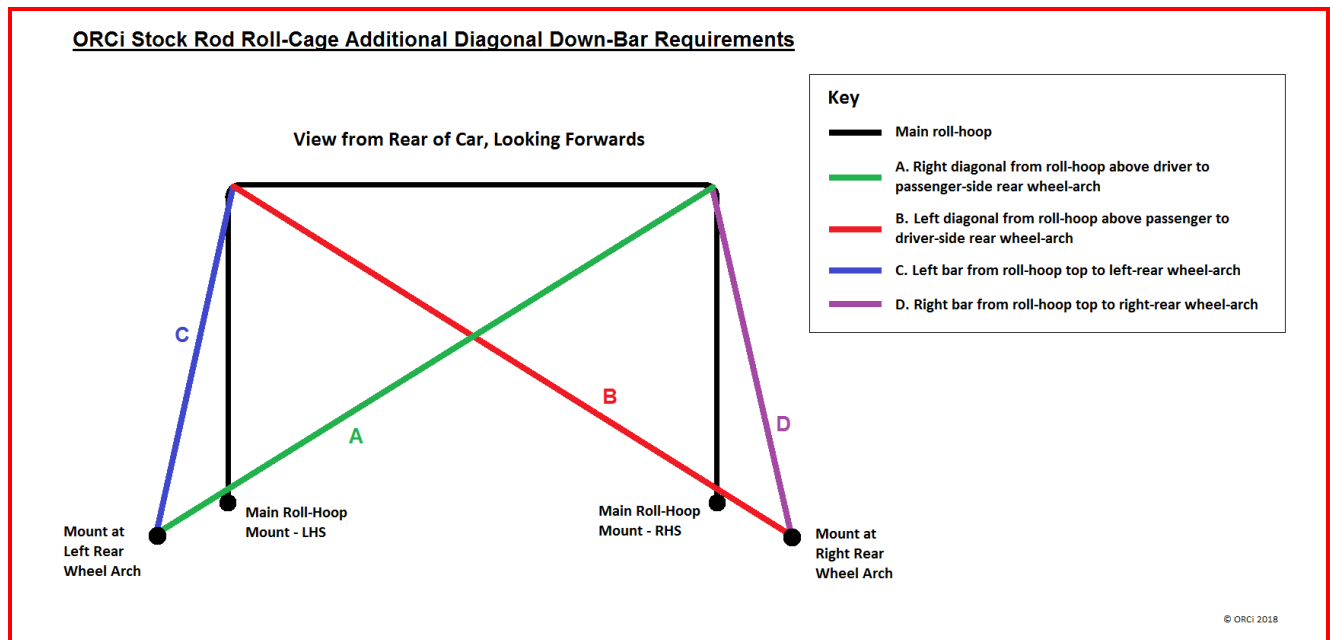
## **11. BUMPER & GRILLES**

- A rear bumper may remain on the car occupying its original position. You may replace this with a panel as set out under bodywork rule 10. For steel bumpers, there must be one 50mm inspection hole on the driver's side. Grilles must be original or plastic replacements and must remain in their original position. Fibreglass grilles are allowed and may include headlamp apertures. Cars must run a grille if originally fitted.

## **12. ROLL CAGES**

- The following steel rollcage protection is required to this specification: 1¼" OD (3mm) tube, or 1½" OD (2.5mm) tube or 1½" x 1½" (3mm) SHS section;
  - One front hoop, one rear hoop, one rear hoop cross bar at shoulder height to mount seat support or a seat brace hoop as a seat support
  - Two bars connecting the front hoop to the rear hoop at the top, one effectively at the top of the passenger door and one effectively at the top of the driver's door
  - One bar connecting the front hoop and the rear hoop either central in the car or running diagonally from rollcage front hoop to rear hoop (i.e. corner to corner)
  - One dash cross bar
  - Two N/S chicken bars and two O/S chicken bars must be fitted between the rollcage hoops. These must have a minimum of two vertical support bars (in the same specification steel) each side connecting both chicken bars together. These must run parallel to each other in a vertical manner. Alternatively, the chicken bars may run in a cross manner on the passenger side only, and this does not require any connecting bars.
- The lower bar on the driver's side (if horizontal) should be a minimum of 3" (76mm) above the sill.
- The base of the roll cage A and B post hoops must be connected to the bodywork by one of two methods:

- mounted on top of the sill or sill bar (the sill bar must run the entire length of the sill connecting the A and B post hoops and be of rollcage specification material as noted above, this is not a chicken bar)
- welded on four 23cm square steel plates 3mm (min.) thick, or a piece of 38 x 38 mm box section, 2.5mm minimum thickness, connecting front and rear hoop feet welded to sill or floor. This bar will not be classed as a chicken bar.
- All joints must be welded over 90% of the joint unless an approved RACMSA cage is used.
- The cage must not protrude through the bulkhead with the following exception. It is permitted to support both turrets from the roll cage with the maximum material and gauge as the roll cage, but the shock absorber must not connect to it.
- Rear cage bars must terminate at least 10mm from the rear panel.
- ~~At least two diagonal down-bars must be fitted from the rear face of the driver rollcage hoop (at the highest point); one to the near side and one to the off-side rear arch areas. These down-bars require one diagonal brace between them from the driver's side rollcage to the near side rear arch.~~
- **Two diagonal down-bars MUST be fitted from the rear face of the driver rear roll-cage hoop (at the highest point); one from the nearside top down to the nearside rear wheel-arch (C), and one from the offside top down to the offside rear wheel-arch (D). In addition, a third diagonal down-bar MUST be fitted from the offside top down to the nearside rear wheel-arch (A). A fourth diagonal down-bar from the nearside top down to the offside rear wheel arch (B) is optional.**



- The right is reserved to drill inspection holes in the rollcage to check thickness of steel used.
- Front screen must have a central bar of 19mm x19mm or 3/4" x 3/4" SHS welded in place.

### **13. SEATS**

- Aluminium, steel or fibreglass competition seats are mandatory, and must be securely fitted as per manufacturer's recommendations.
- 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.

### **14. BATTERIES & ELECTRICAL**

Batteries must be securely clamped in place and covered with a leak proof material to prevent spillage of acid. They may be fitted under bonnet, in passenger foot-well or behind the driver, but the floor cannot be cut to accommodate them. They must be fitted at least 6" (150mm) from the fuel tank. An electrical cut/off switch must be fitted to the R/N/S corner of the car. If the car is fitted with an electrical fuel pump, a switch must also be within easy reach of the driver. Self-starter motors must be fitted and in working order at all times. The use of a rev counter is permitted. A 24-volt starter system is permitted. If two batteries are fitted, then the car must be wired to use a 24-volt starting system. The use of (AGM) gel type batteries is permitted as an alternative to the common lead acid type. You must not use two batteries as ballast.

## 15. STOP LIGHTS & MIRRORS

Either two stop/brake lights or one single stop/brake strip-light must be fitted onto the rear parcel shelf or hung from the roof. If two lights, they must be a minimum of 30 inches (762 mm) apart facing rearward. Lamp(s) must be operated by the standard stop light switch as fitted to the particular model of car. No other switches or modifications to switches to be made. Bulbs to be of 21-watt intensity. It is permitted as an alternative to use LED light units of the same size and of at least equivalent intensity.

- For round type lamps: minimum diameter 3" (76mm), maximum diameter 5" (127mm).
- For square/rectangular type lamps: minimum 3" (76mm) square, maximum 5" (127mm) square.
- For strip type lamps 16" (406mm) maximum width.
- Corsa C can use original rear light fitting as can newer cars with light fittings above the waist line, but must be covered in self adhesive clear vinyl
- An interior mirror must be fitted. A driver's door mirror must be fitted, mounted in such a position that it does not project further out than the body. (Must not be able to get knocked off whilst in racing traffic)

## 16. FUEL TANKS

Fuel tanks must be metal or FIA approved with a maximum capacity of 4 gallons or less are permitted. These must be fitted rear of the driver but in front of the rear axle centre line, and must be at least 6" from the battery, i.e. they are no longer allowed to be fitted in the boot area. They MUST NOT BE FITTED BELOW THE REAR CHASSIS RAILS AND MUST BE FITTED ABOVE THE FLOOR INSIDE OF THE CAR, and the floor must not be cut in any way to accept the tank. All tank filler caps must be of a secure leak proof metal with a screw fitting. Petrol pipes must be of metal or metal covered and have a shut off tap within easy reach of the driver. All tanks must be fitted with a breather system which prevents spillage if a car is inverted. All petrol pick up pipes must draw through a stand pipe from the top of the fuel tank. Four 50mm holes must be drilled at the lowest point under tanks to allow spilled petrol to drain. A firewall between fuel tank including filler cap/pump and driver must be fitted. Fuel regulators may be used. The fuel pump must be fitted in the rear behind the driver. A one way valve must be fitted to the breather pipe.

## 17. FUEL

Permitted fuel specification from 1<sup>st</sup> January 2008 (this specification supersedes all previous specs).

- 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).
- 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.
- 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.
- Lead Replacement Gasoline, LRG, also known as LRP. Only additives from Sodium, Phosphorous, Potassium, or Manganese according to manufacturer's 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.
- 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.

	BS EN 228	BS 7800	BS 4040	LRG/LRP	Test Standard
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.

## 18. SILENCER/EXHAUST

- The only silencers allowed are the AX891, Laws or Simpson ORC225 & Edwards Exhaust.
- A minimum of 2" (50mm) and a maximum of 10" (254mm) section of tail pipe must be fitted to the silencer facing rearwards or down. This is to be measured from the rear of the box (not the pipe).
- No heat shield wrapping of any description is permitted.

## 19. RADIATORS

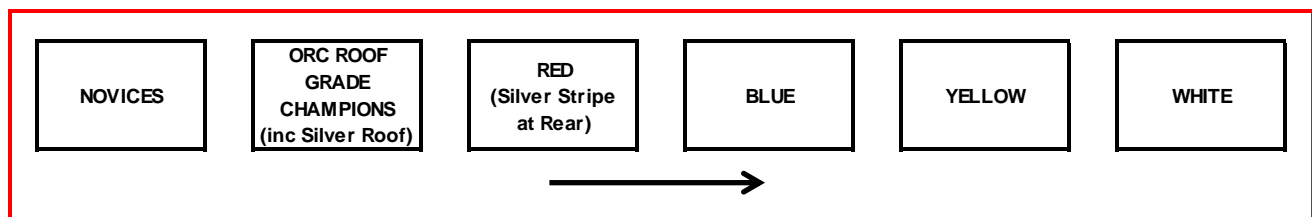
Radiators are free but must occupy their original position. A heater matrix may be used as a secondary radiator but must be fitted under the bonnet.

## 20. ROOF COLOURS

When notified of their grading, drivers will paint at least 90% of the roof to their appropriate grading colour, White, Yellow, Blue or Red. Race car numbers can be painted on the top of the roof, but **will not** be used as **an** excuse to have the incorrect roof grading **colour**. A silver stripe denotes **the** top points scorer. **There is NO superstar grade, and roof-lights are NOT permitted for any reason.** Any driver winning an official ORC roof Championship will be required to paint his roof the said colour for that Championship as follows:

<b>1. World</b>	Gold	<b>2. European</b>	Red/Yellow Chequered
<b>3. British</b>	Black/White Chequered	<b>4. ORC</b>	Orange/White Chequered
<b>5. National</b>	Gold Stripe	<b>6. English</b>	St. George's Cross
<b>7. Scottish</b>	St. Andrew's Cross	<b>8. Irish Open</b>	<b>Green/White Chequered</b>
<b>9. Irish Closed</b>	<b>Green</b>	<b>10. Points Champion</b>	<b>Silver Roof</b>
<b>11. Points Leader</b>	<b>Silver Stripe</b>		

- The World, European, British, ORC, National, English, Scottish, Irish **Open**, and **Irish Closed** Champions, plus each Promotion's/**Region's** Points **Champion and Points Leader**, must start at the back of the grid, **in the order listed above (with the World being at the rear and the others progressing forwards in order), and with a full grade gap to the Red grade in front.**
- With the exception of special championship races, the race grid must line up as follows:



- 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.

## 21. SIGNWRITING & NUMBERS

- Numbers must be displayed on both sides of the car in contrasting colours with a minimum of 12" high in 2" strokes. Regulation fin numbers must be Black 9" high in 1½" strokes minimum. The fin plate must be white fitted on or above the roof line but be no higher than 12" in total from the roof. All numbers must be of professional appearance and can be painted on the roof itself in addition to the fin plate.
- The driver's name must appear plainly on the sun visor. Only other writing confined to sponsors or mechanics names which must have the approval of the promotion at all times.

## 22. TRANSPONDERS

An AMB Tranx160/260 or X2 transponder for lap scoring is mandatory and should be working at all times. It should be fitted 1.8 metres back from the front most position of the car. A hole of at least 6" (150mm) is

required in the floor, with the transponder fitted vertically, just below the hole. In the event of a dispute with the transponder result, the Steward of the meeting will make the final decision. Any driver found to have fitted the transponder further forward than the required 1.8 metres will be excluded from the meeting.

### **23. WEIGHT**

- The car can be weighed at any time before, during or after a meeting, without driver. It must always achieve the minimum weight; the adding of fuel or liquids is not allowed to achieve this minimum weight.
- The minimum car weight for rear wheel drive cars is 630Kg and front wheel drive cars is 720Kg. Additional weight/ballast, **consisting of** steel plate only (~~no~~ cast dumbbells **are NOT** permitted) must be bolted with equal amounts **distributed** in **all four** ~~both front and rear~~ foot-wells, and in the same position in each foot-well. Additional weight/ballast must not exceed 20kg in total (if more is required **in Novas and Peugeotts** it must **only** be achieved by **constructing the uprights under the chicken-bars from solid steel bar** ~~adding additional strength to the rollcage, i.e. extra upright in chicken bar or similar~~). Steel plates must be bolted using a minimum of four 12mm diameter **shouldered** bolts **per plate, along with load-spreading washers and nylock nuts. The use of set-screws (i.e. fully threaded) is NOT permitted.** ~~and~~ The bolt **heads** must be **tack-welded in, such that they can be removed relatively easily to allow the plate to be weighed.**
- The driver's side weight of the car must be a maximum 54.0%, at any time. This will be weighed without the driver in the car.
  - If the car is checked and found to be under the total permitted weight (not inside weight) this is an automatic ORCi suspension. Up to 1.0kg under = one month suspension, up to 2.0kg under = 2 months suspension. In excess of 2.0kg under = 6 month suspension.
  - If the car when checked is over the 54.0% but under 54.5% inside weight, on your first offence you will lose all points/monies due on the day and receive a final warning.
  - If the car when checked is found on a second occasion to be over 54.0% but under 54.5% you will receive a one month suspension, lose all points/monies due on the day.
  - Anyone over 54.5% on their first check will receive an automatic one month ban, and loaded immediately with loss of any points or monies due (if applicable).
  - If a car when checked is found over 54.5% on a second occasion the penalty will automatically be doubled, or possibly carry a longer suspension.

### **24. SAFETY EQUIPMENT**

- Refer to separate ORCi Safety Spec Sheet
- **Raceceivers**
  - **Raceceivers are MANDATORY in ALL Stock Rod races.**
  - **Raceceivers MUST be switched on and operational at ALL times when on the racetrack, enabling direct one-way wireless communication between a nominated official and all drivers.**

### **27. GENERAL RULES OF RACING**

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

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

REVISED/NEW RULES FOR 2019 ARE HIGHLIGHTED IN **BOLD/ITALIC RED** PRINT

ITEMS MARKED ~~STRIKETHROUGH~~ ARE NO LONGER APPLICABLE/ALLOWED

2019 Stock Rod Technical Specifications

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