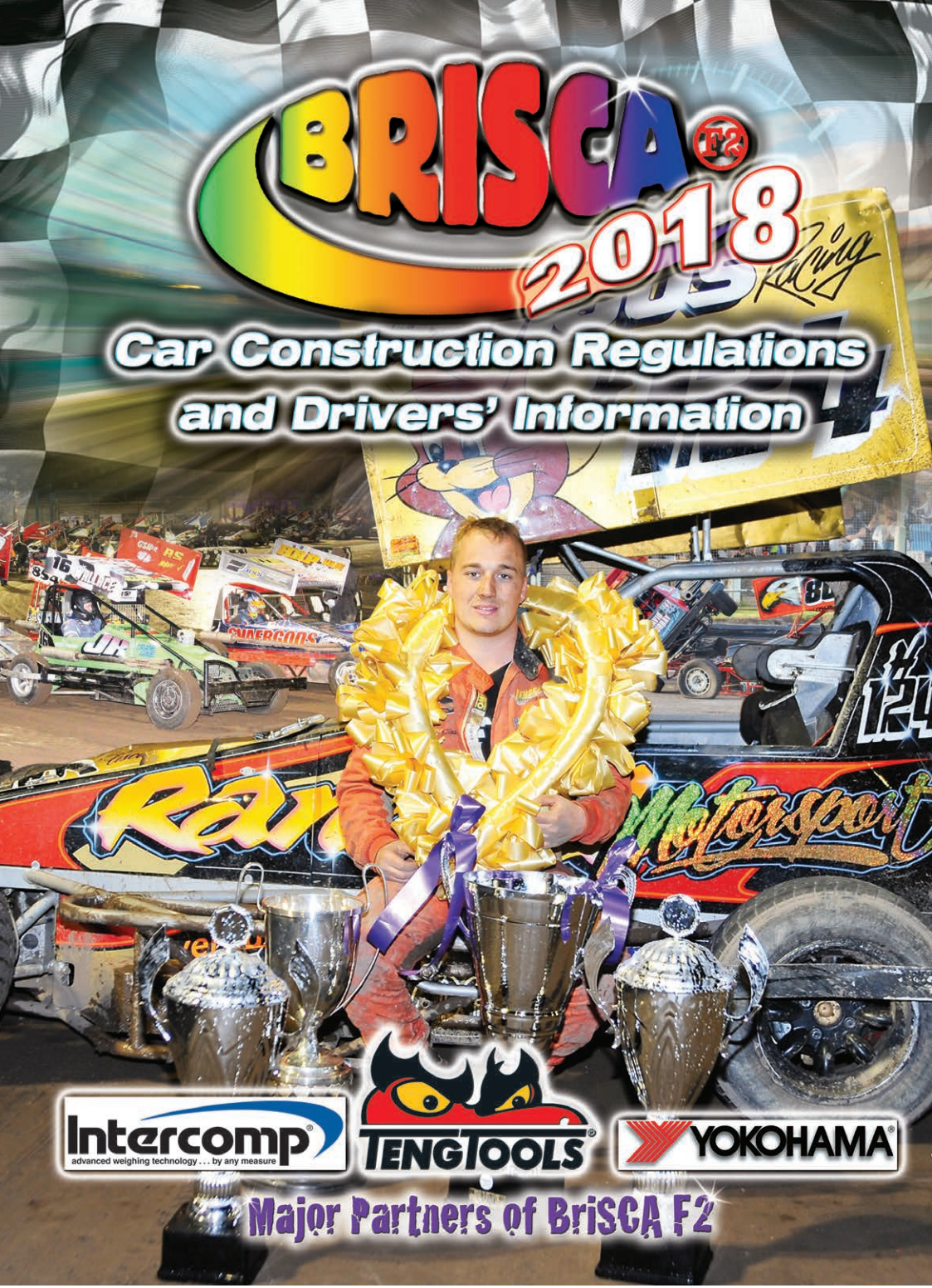
BRISCA F2 2018 Racing

Car Construction Regulations and Drivers' Information



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CHAPTER 12

BriSCA FORMULA TWO
2018 TECHNICAL CAR SPECIFICATION RULES

Note: *All changes from the previously published version of the Technical Car Specification Rules are highlighted in red italics*

Definitions used in these Rules

RHS	Rectangular Hollow Section
SHS	Square Hollow Section
CHS	Circular Hollow Section
OHS	Oval Hollow Section
Axle	A solid axle with a wheel at each end (e.g. a front beam axle, or English rear axle), or both sides of an independent suspension arrangement taken as a pair (e.g. a wishbone/bottom arm front suspension design).
Car centre-line	The main centre-line of the car is defined as a line running along the horizontal length of the car, equidistant between the two main chassis rails when viewed from above.
Engine centre-line	The centre-line of the engine is defined as the rotational centre-line of the crankshaft, measured at the pulley securing bolt.
Standard Type/Size	Component of a size, weight and material as originally manufactured. Details can normally be found in the appropriate Haynes manual.
Production Type/Size	Component of a size, weight and material as originally manufactured. Details can normally be found in the appropriate Haynes manual.
Original Type/Size	**Component of a size, weight and material as originally manufactured. Details can normally be found in the appropriate Haynes manual.**
TDC	Top Dead Centre
ECU	Electronic Control Unit

General Notes

- It is the driver's responsibility to present a **safe and legal** car **at all times** (including scrutineering, practise, and racing). This is stressed especially for such simple checks as front wishbone lengths, bumper heights, track width, and rear axle alignment.
- The presentation of a car for scrutineering is a declaration by the driver that the car is eligible to race, and complies with all technical and safety rules.
- Any necessary rule changes during the course of a season (most likely to be safety related) will be notified to drivers through the official BriSCA F2 website

(BriSCAf2.com). Change advisories received from any other source should be checked against this official source for authenticity and accuracy.

- Drivers are welcome to submit proposed changes to rules, to BriSCA F2, where the opportunity of a safety enhancement, cost reduction, parts-supply improvement, competitive levelling, or general benefit to the sport is identified.
- Permission for any proposed change MUST be applied for in writing to BriSCA F2 via the following channels:
  - Mail: BriSCA F2, Nylands, Charlton Horethorne, Sherborne, Dorset, DT9 4NG
  - Web: Use the online contact form at www.BriSCAf2.com
  - Email: BriSCAF2tech@outlook.com (All changes except Zetec engines)
  - Email: Zetec@BriSCAF2.com (Zetec engine changes only)
- Proposed changes will be considered by the BriSCA F2 Technical Committee and an official response duly made as appropriate.
- Drivers must NOT fit unapproved parts or components, or make modifications, that do not meet the current technical specifications, whether they believe they have a case for them or not. A process for approval exists and should be followed by all drivers.

200 General Rules

Technical Rules

200.1 The drilling, lightening or other modification of any plates, bars or safety components is NOT permitted unless explicitly stated in these rules.

200.2 Standard parts must NOT be changed or altered unless explicit permission is given in these rules.

200.3 The use of ceramic bearings is NOT permitted anywhere on the car.

200.4 Unless a rule explicitly states an action can be taken, a modification made, or a replacement part sourced/manufactured, then such actions/modifications/replacements are NOT permitted. This is the overriding principle for ALL technical rules.

200.5 Unless these published rules explicitly state something can be implemented, then it CANNOT.

200.6 Prior approval MUST be sought and received for any changes to the current published rules or to allow the use of any non-standard or modified parts. Requests MUST be submitted to BriSCA F2 and will be considered for the following year's rulebook. Such parts or changes must NOT be implemented until approval has been granted as appropriate.

200.7 The deliberate tampering with, or modification of safety components, e.g. safety harnesses, and one-way fuel ***safety*** valves, in contravention of the rules below and/or the component's intended design purpose, WILL lead to disciplinary proceedings which may result in disqualification, a fine, and/or a racing ban dependent on the circumstances.

Illegal Components

200.8 ***A meeting promoter or senior BriSCA F2 Official retains the right to confiscate or impound any item(s)/component(s) that do not conform to these rules.***

200.9 ***Driver Safety Equipment***

200.9.1 ***Any driver safety equipment presented for a safety check (e.g. helmet, gloves, balaclava, or a race-suit), that does not conform to the current rules, or is determined to be unsafe (e.g. gloves with holes in them) may be retained during the meeting by the scrutineer, promoter or appointed official.***

200.9.2 ***Helmets – Any helmet presented for a safety check that does not conform to the current standards will be labelled with an ORCi "Failed" sticker and only returned to the driver at the end of the meeting.***

200.9.3 ***Gloves – Any gloves presented for a safety check, which are deemed beyond repair, will be retained by the promoter, senior BriSCA F2 official, or their appointed representative.***

200.9.4 ***Gloves – Any gloves that fail a safety check, but that are deemed repairable, will be returned to the driver at the end of the meeting.***

200.10 ***Car and Engine Components***

200.10.1 ***The meeting promoter or a senior BriSCA F2 official will retain any component suspected of being illegal (for example, an underweight flywheel, or an illegally modified engine component). The driver will be subject to a technical investigation/disciplinary process as appropriate.***

200.10.2 ***In the case of engines, only the suspected component will generally be retained, however, should the allegation be sufficiently serious (e.g. the crank, rods and pistons), then the entire engine may be retained during the investigation/disciplinary process.***

200.10.3 ***Any retained component deemed to be legal and within the rules will be returned to the driver at the conclusion of any investigative/ disciplinary process.***

200.10.4 ***BriSCA F2 will retain any component deemed illegal to the current rules.***

201 BriSCA Formula 2 Stock Car Definition

201.1 A BriSCA Formula Two Stock Car (subsequently referred to as the car) MUST be:

- Open-wheel in design and construction around ***a basic steel ladder chassis under which a space-frame undercarriage (lower-chassis) is constructed, and on top of which a roll-cage is mounted***.
- Front-engined
- Rear-wheel drive
- A single seater car

201.2 The main centreline of the car is defined as a line running along the horizontal length of the car, equidistant between the two main chassis rails when viewed from above.

201.3 The engine, gearbox, and driver's seat, MUST all be fitted along the main centreline of the car within the tolerances quoted in the individual rules below.

201.4 The front and rear axles MUST be fitted centrally in the car, relative to the car's centreline, within the tolerances quoted in the individual rules below.

202 Weight and Ballast

202.1 Weight

202.1.1 The MINIMUM permissible total weight of the car is 650Kg.

202.1.2 The MAXIMUM permissible total weight of the car is 715Kg.

202.1.3 The MAXIMUM permissible inside (left side) weight distribution is 52.50%.

202.1.4 Cars may be weighed at ANY time before, during, or after a meeting and MUST comply with the weight rules at ALL times.

202.1.5 ALL weighing measurements are taken WITHOUT the driver in the car.

202.1.6 At ALL tracks, the adding of fluids, or making of changes of any kind to the car to bring it within limits for a post-race weight check is NOT permitted.

202.1.7 At shale tracks ONLY, excess shale may be removed from the car under supervision, and the car subsequently re-weighed if it is found to be outside the legal limits on first weighing after a race.

202.1.8 Cars may be modified in order to pass any pre-meeting weight checks WITHOUT penalty.

202.1.9 The penalties for inside (left-side) weight infringements are detailed in ***the Technical Infringement Penalties section of the rulebook***.

202.2 Ballast

202.2.1 Bolt-on ballast is NOT permitted.

202.2.2 The use of any solid steel bar and/or plate over 6mm in thickness in the construction of the chassis, bumpers or nerf-rails, that may be construed as ballast, is NOT permitted.

202.2.3 ***The lamination of steel plates in the construction of ANY part of the car, or the installation/construction of multiple steel plates in close proximity to each other which can be construed as ballast, is NOT permitted.***

202.2.4 Tubular bars or box section must NOT be filled with ANYTHING that will increase their weight.

Notes for 2019:

- ***From 1st January 2019, the MAXIMUM steel plate thickness in ANY part of the car construction will be reduced to a MAXIMUM of 3mm, unless explicitly permitted, e.g. 4mm cab floor. This change will cover items such as the side-pod, and cab-sides. This will NOT include plate used in the construction of items such as wishbone brackets, or rear-axle link-bar mounting brackets which require a thicker material.***
- ***From 1st January 2019, the "stacking" of more than two lengths of tube (e.g. RHS, SHS, CHS) in the construction of the chassis, side-pod, fuel-tank/battery protection, or other parts of the car may be restricted. Limitations such as a maximum number of stacked tubes, or a minimum gap between tubes, may be put in place.***

203 Chassis Construction

203.1 General

203.1.1 The car MUST have a steel chassis and roll-cage of welded construction.

203.1.2 Brazing is NOT permitted on the chassis or roll-cage.

203.1.3 ***All joints of the chassis rails, cross-members, undercarriage, and roll-cage MUST be fully welded.***

203.1.4 The chassis floor, main rails, bumpers, nerf-rails, and roof-plate MUST ALL be in the same horizontal plane when the chassis is placed on a level surface and viewed from the front and rear.

203.2 *Main Chassis Design*

203.2.1 ***The chassis must be constructed with two main chassis rails running longitudinally from the front to the rear of the car.***

203.2.2 ***The main chassis rails MUST start/terminate forward of the line of the front axle, and rearward of the rotational centre of the rear axle.***

203.2.3 ***The main chassis rails may be constructed in a traditional flat ladder-chassis type design, or alternatively they are permitted to rise and fall up to a MAXIMUM of 100mm over their length if a triangulated or non-flat design is preferred.***

203.2.4 ***Both main chassis rails MUST be installed in the same symmetrical orientation when viewed from the front/rear. E.g. Both with edges parallel/perpendicular to the ground, or with edges at 45° to the ground.***

203.2.5 ***The centreline of the chassis MUST be perpendicular to the front and rear bumpers, with the main rails equidistant from it at all points along its length.***

203.2.6 The main chassis rails MUST be joined to each other at the rear ***by*** a transverse cross-member. This cross-member will form one of the sides to which the rear-plate MUST be welded (see below).

203.2.7 The ***vertical centre at all points along the*** entire length of the main chassis rails***, and across any transverse cross-members joining them together,*** MUST be level with or above the centreline of the ***bumpers*** when viewed from the side.

203.3 *Main Chassis Materials*

203.3.1 The main chassis rails ***and rear cross-member*** MUST be ***constructed of RHS or SHS with*** at least a MINIMUM size of 40mm x 40mm, and at most a MAXIMUM size of 70mm x 70mm.

203.3.2 The main chassis rails ***and rear cross-member*** MUST be constructed of RHS or SHS with a MINIMUM wall thickness of at least 3mm.

203.4 *Undercarriage/Lower-Chassis*

203.4.1 ***An undercarriage/lower chassis may be constructed underneath the main chassis rails for the purpose of mounting suspension components, installing floor sections, mounting the engine and transmission, and/or protecting the driver.***

203.4.2 ***Any lower chassis rails/undercarriage must NOT extend beyond the footprint of the main chassis rails and their cross-members when viewed from above.***

203.4.3 The distance between the main chassis rails and the undercarriage***/ lower chassis rails*** MUST be equal on BOTH sides of the car.

203.5 Roll-Cage

Primary 7-Pillar Roll-Cage Structure Design

203.5.1 The car MUST have an integral 7-pillar roll-cage, welded ***on top of*** the main chassis rails, to protect the driver.

203.5.2 ALL joints of the roll-cage structure, and any other integral components connected to it, e.g. seat mounting bars (see below), MUST be fully welded.

203.5.3 The roll-cage MUST be constructed from two main hoops running up from the main chassis rails, over the height of the driver's head ***& helmet***, and back down to the chassis rails again. The two main hoops MUST run either (i) front to back along the line of the main chassis rails, or (ii) side to side between the two chassis rails, thus forming the 4 corner pillars (pillars 1-4) of the required 7-pillar roll cage.

203.5.4 The two main roll-cage hoops MUST be connected to each other at the top by two roof bars:

- One front and one rear running transversely in the case of front-to-back main hoops,

OR

- One at each side running longitudinally in the case of side-to-side main hoops.

203.5.5 Two additional side pillars (pillars 5 & 6) MUST also directly connect the main chassis rails to the roll hoop(s) above the driver's head (one pillar on each side of the car between the front and rear pillars) forming a continuous structure. These pillars MUST be welded directly to the main chassis rails at the bottom, and the roll hoops at the top, and must NOT rely on any other component as part of their construction, e.g. a suspension mount.

203.5.6 The top and bottom sections of the middle pillars must NOT be offset from each other where they intersect any side or other protection bars ***(see below)***.

203.5.7 One additional rear pillar (pillar 7) MUST directly connect the centre of the rear transverse roof bar/roll-hoop (that joins the two rear roll-cage corner pillars together at the top of the rear window aperture) to the centre of the rear roll-cage lower transverse cross member (that joins the two rear corner roll-cage pillars together at the base of the rear window aperture – see below).

203.5.8 The 7th pillar MUST be vertical when viewed from the front or rear of the car, MUST be installed mid way between the left and right rear corner pillars of the roll-cage, and MUST be constructed using a single length of material. There is no mandatory requirement for this pillar to extend all the way down to the main chassis; however, it may be installed in this way if a driver/constructor so desires (subject to roll-cage plating rules – see below).

203.5.9 When viewed from the side, the 7th pillar MUST follow the same profile as the two rear corner pillars, such that it sits inside of, or level with, a straight-edge butted up against them at any point along their length. Where the centre of the roof and/or rear-window cross-member(s) protrude beyond the profile of the two rear corner pillars, e.g. a curved-out rear-window cross-member, or curved up/out rear roof bar, a MAXIMUM distance of 75mm from the rearmost edge of the 7th pillar's side-profile to the rearmost edge of the corner pillars' side-profile is permitted.

203.5.10 ***In order to ensure compliance with the above specification, a flat bar, MINIMUM 2mm in thickness (e.g. a steel or aluminium rule) MUST be able to pass straight through the cab/roll-cage structure, under the level of the roll-cage hoops, and above the driver's helmet (when the driver is strapped in the car in the normal racing position), without bending/deflection, thus demonstrating that the roll-cage hoops do indeed run over the height of the driver's head/helmet.***

Primary 7-Pillar Roll-Cage Structure Materials

203.5.11 The main hoops (pillars 1-4), their connecting bars (rule ***203.5.4***), and additional pillars (5, 6 & 7) MUST be constructed of SHS or CHS with a MINIMUM wall thickness of 3mm.

203.5.12 The main hoops (pillars 1-4), their connecting bars (rule ***203.5.4***), and additional pillars (5, 6 & 7) MUST be at least a MINIMUM size of 30mm x 30mm (SHS), or 30mm diameter (CHS).

Additional Roll-Cage Structure Design

203.5.13 Side-bars running longitudinally between the front and rear roll-cage pillars MUST be installed on both sides of the car at approximately elbow height.

203.5.14 The side-bars MUST abut, or be abutted by, the middle roll-cage pillars on each side of the car, and all joints to the roll-cage pillars MUST be fully welded.

203.5.15 The side-bars MUST be equal heights from the chassis rails on both sides of the car.

203.5.16 The side-bars MUST measure a MINIMUM of 750mm apart from inside edge to inside edge at the driver's seat.

203.5.17 At least two separate down-bars MUST be installed on each side of the car within the area bordered by the front and middle roll-cage pillars, the main chassis rail and the side-bar, primarily designed to provide protection for the driver from intrusion in to the cab area from bumpers (through the side panel). At least 1 down-bar MUST connect the side-bar to the main chassis rail, whilst a second down-bar MUST connect either the side-bar or the front roll-cage pillar to the main chassis rail.

203.5.18 The down-bars MUST be welded at both ends (to the chassis rails and side-bars/roll-cage pillars), and be equally spaced (as far as practically possible, and with the safety of the driver in mind) so as to divide the area (between the front and middle roll-cage pillars, main chassis rails, and side-bars) in to equal size apertures.

203.5.19 The use of non-vertical down-bars is permitted to allow triangulation for improved strength, subject to the rules above.

203.5.20 The middle roll-cage pillar on each side of the car (pillars 5 & 6) does NOT count as one of the two down-bars, which MUST be in addition to the 3 roll-cage pillars mandated on each side of the car ***(see above).***

203.5.21 The rear roll-cage pillar on both sides of the chassis MUST be joined to the other by a transverse horizontal cross-member. This cross-member will form one of the sides to which the rear plate MUST be welded (see below), and the base to which the 7th pillar (see above) MUST be welded.

203.5.22 The front roll-cage pillar on both sides of the chassis MUST be joined to the other by a transverse horizontal cross-member at the base of the windscreen aperture at approximately elbow height.

203.5.23 The joints of the front and rear cross-members to the respective roll-cage pillars MUST be fully welded, thus completing an integral structural ring around the roll-cage/driver at approximately elbow height.

Additional Roll-Cage Structure Materials

203.5.24 With the exception of the 7 main roll-cage pillars and two roof bars as specified ***earlier (203.5.1-10)***, all other parts of the roll-cage specified above (***203.5.13 onwards***) MUST be constructed of SHS or CHS with a MINIMUM wall thickness of 2.5mm, and at least a MINIMUM size of 25mm x 25mm (SHS) or 25mm diameter (CHS).

203.6 Roll-Cage Plating – Roof

203.6.1 A ***single*** steel sheet plate of MINIMUM 3mm thickness MUST be welded to the top of the roll-cage along the full length of all 4 sides (the two main roll-cage hoops and the two connecting bars) to form a protective roof ***plate*** over the driver's head.

203.6.2 The roof plate MUST measure at least a MINIMUM of 560mm in length across its entire width, and at least a MINIMUM of 400mm in width along the mandated MINIMUM 560mm length. These dimensions include the diameter of the roll-cage tube to which the plate is welded.

- The 400mm width measurement is taken in the transverse horizontal plane, parallel to the ground, between two vertical straightedges butting against the outsides of the roll-cage tube.
- The 560mm length measurement is taken parallel to the longitudinal plane of the roof, between two straightedges perpendicular to the front and rear of the roof.

203.6.3 The use of a non-rectangular roof plate is permitted, if so designed, but it must conform to the above specification, i.e. be a MINIMUM of 560mm in length at all points, not just the centre, and a MINIMUM of 400mm in width for the MINIMUM 560mm mandated length.

203.6.4 ***The welding together of multiple sections of plate to form a roof plate is NOT permitted.***

203.6.5 The roof plate must NOT be drilled or lightened in any way, except for the fitting of a roof fin or superstar lights.

203.6.6 There MUST be a clearance between the driver's helmet and the roof plate, such that the helmet cannot strike the roof when the driver is strapped in the racing position.

203.7 Roll-Cage Plating – Rear

203.7.1 The rear of the roll-cage MUST be panelled with a steel sheet plate of at least 2mm MINIMUM thickness, and to a MINIMUM height of at least 300mm above the level of the main chassis rails along its entire length.

203.7.2 The rear plate MUST be FULLY welded along all sides (to the two roll-cage pillars, the chassis cross-member, and the mandated roll-cage cross-member).

203.7.3 The rear plate must NOT be drilled or lightened in any way.

203.7.4 It is strongly recommended that the nearside (left) of the roll-cage (between the main chassis rail and the horizontal side-bar) is also panelled with 2mm thick steel sheet plate, welded on all sides, as per the rear of the roll-cage.

203.8 Bodywork

General

203.8.1 ALL panels/body-work, where fitted, MUST be constructed of metal, unless specified below. The use of fibreglass, carbon-fibre, Kevlar, or other material(s) is NOT permitted.

Roll-Cage

203.8.2 The roll-cage MUST be enclosed with metal panel-work, up to the level of the side-bars, on both sides of the car, and the rear.

203.8.3 The area between the middle and rear roll-cage pillars, above the side-bar may be panelled if so desired, but any panel MUST be metal if fitted.

203.8.4 Equal apertures MUST be left on BOTH sides of the roll-cage for driver entry/exit.

203.8.5 A rear "window" MUST be left open to allow access for scrutineering checks.

Engine Cover

203.8.6 The engine bonnet/cover is defined as the primary single removable section of body-work/panelling enclosing the top of the engine.

203.8.7 The use of metal, Kevlar, and/or fibreglass in the construction of the engine bonnet/cover is permitted. The use of carbon-fibre is NOT permitted.

203.8.8 The engine compartment MUST be FULLY enclosed above the main chassis rails by the engine bonnet/cover and any additional panel-work as necessary. The bonnet/cover and any additional panel-work MUST be securely fitted.

203.8.9 The use of ***open*** ventilation holes cut in the bonnet/cover, side panels, and/or top panelling covering the engine (above the main chassis rails), and/or enlarged holes around the exhaust/inlet manifolds, is NOT permitted.

203.8.10 ***The use of ventilation holes at the rear sides of the engine cover, above the main chassis rails ONLY, to allow sufficient air-flow through the engine compartment to provide adequate engine cooling, especially on shale, is permitted. The side of the engine cover MUST overlap with the cab side-panel behind it by at least a MINIMUM of 50mm at the point of the ventilation opening.***

203.8.11 A front grille in the engine bonnet/cover design, to allow cooling airflow to the radiator/engine, is permitted.

203.9 Windscreen

203.9.1 The windscreen aperture(s) must be covered with a steel mesh to protect the driver from projectiles.

203.9.2 The steel mesh MUST be no more than a MAXIMUM 40mm matrix, and MUST be a MINIMUM 2.4mm thickness.

203.9.3 The steel mesh MUST be securely fitted to the car by welding, or through the use of a MINIMUM of 4 metal fixings (1 per corner) including, but not limited to, nuts and bolts, "U"-bolts, or "Jubilee" clamps. The use of cable-ties, whether metal or plastic, is NOT permitted.

203.9.4 It is NOT permitted to drill holes in ANY roll-cage tube/bar for the purpose of mounting the steel mesh.

203.9.5 An additional solid screen may be fitted if required (e.g. for racing in the rain or on shale), but it MUST be made of a material that will not shatter if impacted.

203.9.6 The steering wheel MUST be positioned well inside the cab, such that the driver's fingers are not at risk of catching in the windscreen mesh under normal racing conditions.

203.10 Mud-Guards/Wheel-Arches

Front Wheels

203.10.1 Mud-guards/wheel-arches are NOT permitted over/around the front wheels of the car.

203.10.2 Attachment of a mud-guard/splash-guard to the front part of the nerf rail(s), to protect the driver from water/shale being flicked up from the front tyre(s), is permitted. Any such device MUST be securely attached, and must NOT extend any further forward than the rear-most point of the tyre (with the wheels facing straight forward).

Rear Wheels

203.10.3 Integral "retro-style" mud-guards/wheel-arches over the rear wheels are permitted, if desired, but they must NOT cover any more than one-quarter of the wheel when viewed from the side in order to maintain the spirit of an open-wheel stock car.

203.10.4 If fitted, a rear wheel mud-guard/wheel-arch MUST be present on BOTH sides of the car, and they MUST be symmetrical in design/appearance.

203.10.5 Any mud-guard/wheel-arch must NOT extend below the level of the main chassis rail.

203.10.6 Any mud-guard/wheel-arch must NOT extend rearwards beyond the vertical plane through the rotational centre of the wheel.

203.10.7 Any mud-guard/wheel-arch must NOT extend outwards from the chassis rail beyond the outer edge of normal dry-running wheels.

203.10.8 Any mud-guard/wheel-arch must NOT extend outwards from the chassis rail beyond the outer edge of the nerf-rail (excluding any wheel-guards).

Notes for 2019:

- ***Roll-Cage Plating – From 1st January 2019, BOTH sides of the roll-cage MUST be plated in steel plate (with a MINIMUM thickness of 2mm) to fully enclose the area bordered by the main chassis rail, the rear roll-cage pillar, the side window bar, and the front roll-cage pillar (or an additional down-bar as necessary to meet dimensional requirements).***
  - ***The plate MUST be fitted as either a single piece (formed as required), or up to a MAXIMUM of 3 pieces on each side of the car (for easier fitment on non-flat cab sides).***
  - ***The plate MUST be fitted to the outside of the roll-cage/window-bar/down-bars, or inset NO MORE than a MAXIMUM of 5mm from the outer edge of the tube.***
  - ***The plate (each plate section) MUST be fully welded to the roll-cage structure along the full length of each of its sides (in the same manner as the existing rear panel).***
  - ***The area covered by the plate MUST measure at least a MINIMUM of 1200mm in length, from the rearmost point where the rear roll-cage pillar meets the chassis rail, horizontally, to the vertical plane where its front-most point meets the chassis rail.***
  - ***Should the roll-cage be less than 1200mm in length, i.e. the 1200mm measurement extends forward of the front roll-cage pillar, then an additional steel bar (minimum 25mm CHS/SHS x 2.5mm wall), MUST be welded around the exposed forward/upper edges of the plate, and link the chassis rail to the front roll-cage pillar.***
  - ***As the plate must be welded to the window-bar along its top edge and chassis rail along the bottom edge, then the plate height will be determined by the height of the window-bar (see separate rule change for 2019).***
  - ***The front edge of the plate must be vertical, or angled forward, from the point at which it meets the main chassis rail, up to the front roll-cage pillar, the window bar, or the required additional bar (depending on the size of the cab).***
  - ***See*** Technical Diagram 01 ***for a visual guide to the above changes.***
- ***Window Bar Height – From 1st January 2019, side window bars MUST measure a MINIMUM height of 300mm vertically from the top of the bar (excluding bodywork panels) to the point at which the steel side-plates are welded to the main chassis rails.***
  - ***The minimum measurement applies to all points along the length of the window bar, from the front roll-cage pillar to the rear roll-cage pillar.***

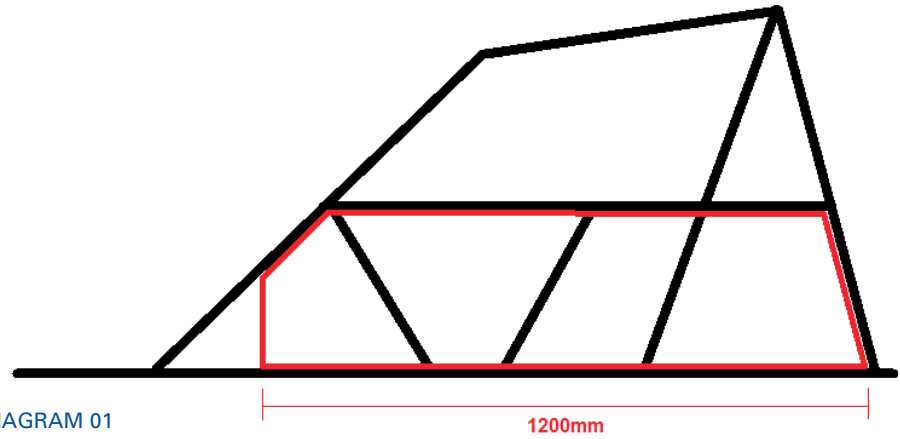

DIAGRAM 01

- ***In the case of cars with a "diamond chassis" type design, e.g. the HCD Dozer, the measurement will be taken vertically from the top of the window bar (excluding bodywork panels) to the point at which the vertical would intersect with the main chassis rail in a traditional flat ladder-chassis type design. Cars employing the "diamond chassis" type design, will already be carrying larger foot protection side-plates than cars with a traditional flat ladder-chassis, and therefore this method of measurement will just ensure competitive parity.***
- ***See*** Technical Diagram 02 ***for a visual guide to the method of window bar height measurement.***

Window Bar Minimum Height

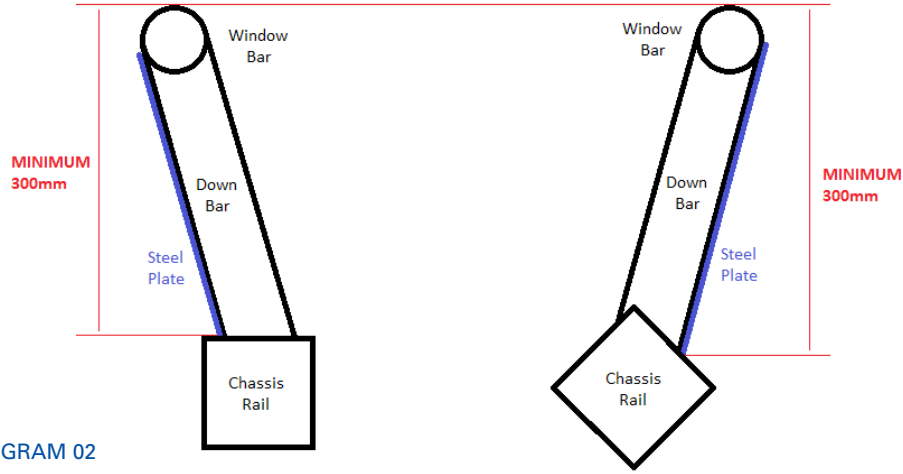

DIAGRAM 02

204 Bumpers

General Requirements

204.1 ***The lightening of any mandated specification material in the construction of the bumpers, bracing, brackets, mounts, and mandatory hoops is NOT permitted.***

204.2 The ends of ALL hollow section material used in the construction of bumpers, bumper-hoops, wheel-guards and mountings, around the perimeter of the chassis, MUST be capped with a fully-welded, closed, steel cap. The use of "penny" washers on circular tube is permitted, but any hole in the washer MUST be welded closed.

Construction Specification

204.3 The car MUST be fitted with front and rear bumpers constructed of steel.

204.4 ***Front Bumper –*** The front bumper blade MUST be constructed with a flat face surface 100mm (4in) deep along its entire length. The top and bottom edges of the front bumper MUST remain in the same horizontal planes at all points along the entire length.

204.5 ***Rear Bumper –*** The rear bumper blade MUST be constructed with a flat face surface 100mm (4in) deep along its entire length, with ONLY the following exception permitted.

204.5.1 ONLY where a wheel-guard is installed, and ONLY for the purpose of mounting the wheel-guard and/or its brackets, a MAXIMUM of 100mm from the end of the bumper face is permitted to be deeper than the 100mm (4in) mandated above. The MAXIMUM permitted depth of the bumper face in this area is 152mm (6in). This measurement is taken in the vertical plane. This is illustrated in Technical Diagram 03.

204.6 ***The front and rear bumper blades MUST be constructed from material with a MINIMUM wall thickness of 2.5mm.***

204.7 The MAXIMUM permitted bumper ***blade*** thickness is 30mm ($1^{3}/_{16}$in).

204.8 The MAXIMUM permitted bumper ***blade*** width is 1,676mm (66in). The bumper width is defined as the bumper face, whether flat or angled towards the wheels, and includes any additional bumper hoop ironwork that can be construed as forming part of the face.

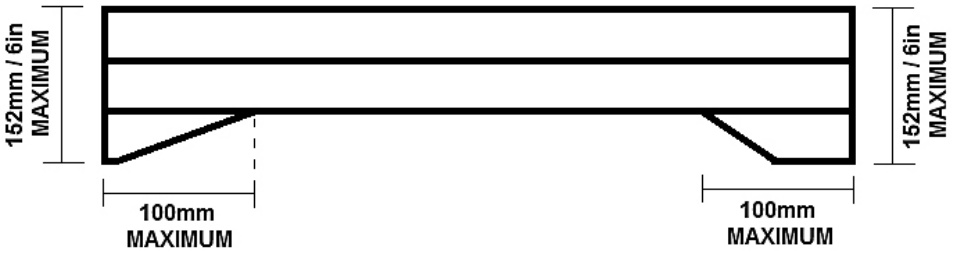

DIAGRAM 03

204.9 Wheel-guard mount plates on the rear bumper may extend beyond the 1676mm (66in) MAXIMUM width; however they MUST be constructed so as to only protrude forward from the rear bumper and NOT create any additional face area to that permitted above.

204.10 Bumpers are NOT permitted to protrude beyond the outside edge of the nerf-rails on either side of the car.

204.11 ***Front Bumper Mounting – A MINIMUM of four angled mounting bars/ brackets MUST be fitted to connect the front bumper blade to the main chassis (via bolt-on brackets, or directly welded), with two on each side of the chassis. These mandated bars/brackets MUST be constructed from a MINIMUM material specification of 30mm SHS, 30mm CHS, or 25mm x 50mm RHS, all with a MINIMUM wall thickness of 2.5mm. Additional bracing/mounting bars are free.*** This is illustrated in Technical Diagram 04.

Front Bumper Example with Mandatory and Optional Stuts/Bracing

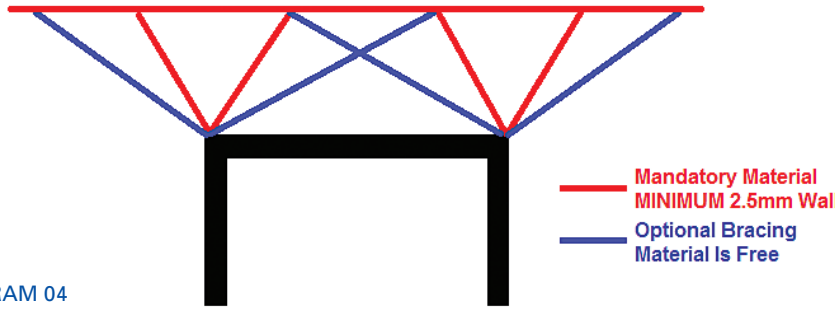

DIAGRAM 04

204.12 ***Rear Bumper Mounting – The mounting brackets/bracing for the rear bumper blade are free in quantity and material specification.***

204.13 The welding of additional transverse material, including, but not limited to SHS or RHS, to the inside of bumper blade faces (for strengthening or any other purpose) is NOT permitted.

204.14 A MINIMUM gap of 30mm MUST be maintained between the inner face of a bumper blade and any additional transverse bracing.

204.15 The use of small pieces of steel plate, welded to the **outer** face of a bumper blade, to effect repair or provide strengthening for bends is permitted, subject to the following:

- The MAXIMUM permitted plate size is 100mm x 100mm.
- The MAXIMUM permitted plate thickness is 5mm
- It is NOT permitted to double-stack, overlap, or join plates together.
- When added to the existing bumper blade, the total overall thickness must NOT exceed the permitted 30mm (see above).

204.16 The use of small pieces of steel plate, welded to the **inner** face of a bumper blade, in to which the diagonal mounting brackets are run, or used to provide strengthening/support for diagonal bracing, is permitted, subject to the following:

- The MAXIMUM permitted plate size is 100mm x 100mm.
- The MAXIMUM permitted plate thickness is 5mm
- It is NOT permitted to double-stack, overlap, or join plates together.
- Plate may ONLY be used where a brace runs in to the bumper blade.
- Plates are NOT included in the total overall thickness measurement (see above).

204.17 Front AND rear bumpers MUST measure 410mm from the ground to the vertical centre of the bumper face, mid-way between the main chassis rails WITHOUT THE DRIVER in the car. This measurement MUST be within a tolerance of +/-10mm, i.e. up to a MAXIMUM of 10mm above or below the stated height.

204.18 Bumpers MUST be smooth on ALL extremities.

204.19 The front bumper MUST be 250mm or LESS from the front tyres in the horizontal plane. This measurement is taken horizontally from the rear of the bumper face at the point closest to the tyre (excluding any bracing or other constructional parts) to the point at which that horizontal plane intersects the tyre). This is illustrated in Technical Diagram 05.

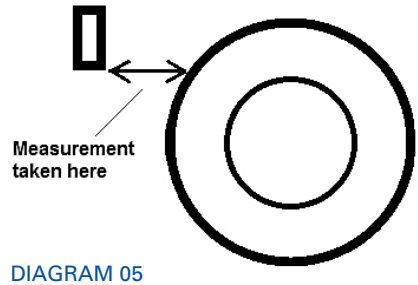

DIAGRAM 05

204.20 The rear bumper MUST be 300mm or LESS from the rear tyres in the horizontal plane. This measurement is taken horizontally from the rear of the bumper face at the point closest to the tyre (excluding any bracing or other constructional parts) to the point at which that horizontal plane intersects the tyre). This is illustrated in Technical Diagram 05.

Bolt-On Bumper Fixings

204.21 ***Bolt-on bumpers MUST be bolted to the chassis by a MINIMUM of four (in number), two on each side of the chassis, high-tensile bolts AND locking nuts with a MINIMUM bolt diameter of 12mm.***

204.22 Bolt-on bumpers MUST have a MINIMUM of TWO secondary fixings to prevent the bumper leaving the car should the mounting bolts break in an impact. Each secondary fixing MUST comprise of a steel chain made of MINIMUM 8mm thick diameter links, with ends joined together by a MINIMUM 8mm thick diameter steel shackle encompassing a threaded securing mechanism. The use of nuts, bolts and washers to join the ends of the chain is NOT permitted. Each secondary fixing chain MUST be wrapped around BOTH the chassis and suitable section of the bumper.

Bumper Hoops

204.23 ***ALL bumper hoops, front and rear, and any mandated support/bracing for them, MUST be constructed from steel with a MINIMUM material specification of 25mm CHS/SHS, and a MINIMUM wall thickness of 2.5mm.***

204.24 The front bumper MUST be fitted with a central lower hoop to help prevent the car riding up over other cars. This hoop MUST have a horizontal centre section a MINIMUM of 304mm (12in) wide, and be a MINIMUM of 152mm (6in) deep from the underside of the bumper along the entire horizontal section length. The bottom of this hoop MUST be braced to the rear by 2 support struts.

204.25 The front bumper MUST be fitted with a fence-side lower hoop to help prevent intrusion of the bumper end in to another car's driver's compartment. This hoop MUST be a MINIMUM of 102mm (4in) deep from the underside of the bumper, and smooth on all edges. The bottom of any tube used in the construction of this hoop MUST be capped with a fully welded, closed, steel cap. Sharp angles, or tapers, of less than 90 degrees that may cause tyre damage are NOT permitted on the bottom of the hoop.

204.26 The front bumper MUST be fitted with a fence-side upper hoop to help prevent intrusion of the bumper end in to another car's driver's compartment, and reduce the risk of entanglement with post and rope fences. This hoop MUST be a MINIMUM of 152mm (6in) and a MAXIMUM of 304mm (12in) high from the top side of the bumper, and smooth on all edges.

204.27 ***The installation of one or more hoops on the rear bumper, for the purpose of protecting the roll-cage and/or preventing another car from riding up and over the rear wheels, is optional.***

204.28 The joining of front bumper hoops, or use of material to create additional hoops not mandated in these rules, creating "saloon stock-car" style bumpers is NOT permitted. This includes, but is not limited to:

- Joining the central lower hoop to the right-hand, fence-end, lower hoop
- Adding material joining the central lower hoop up to the left-hand, "infield" end, of the bumper flat
- Adding other hoops above and/or below the main bumper blade/face.

204.29 The use of a SINGLE bar to connect the top of the mandated front bumper, fence-end, upper hoop (on the right hand side of the car), over the right-front wheel, and back to the nerf-rail or main chassis rail on the right-hand side of the car IS permitted, but is optional.

204.30 The installation of any protection bars over or around the left-front wheel, and/or the rear wheels (with the exception of the mandated right-rear and optional left-rear wheel-guard – see below) is NOT permitted.

204.31 All ***mandatory*** bumper hoops are illustrated in Technical Diagram 06.

205 Nerf-Rails

General Requirements

205.1 ***Nerf-rails MUST be fitted to BOTH sides of the car and made of steel.***

205.2 ***The nerf-rails and their bracing MUST be symmetrical in appearance on BOTH sides of the car when viewed from above.***

205.3 ***The ends of ALL hollow section material used in the construction of the nerf rails MUST be capped with a fully-welded, closed, steel cap.***

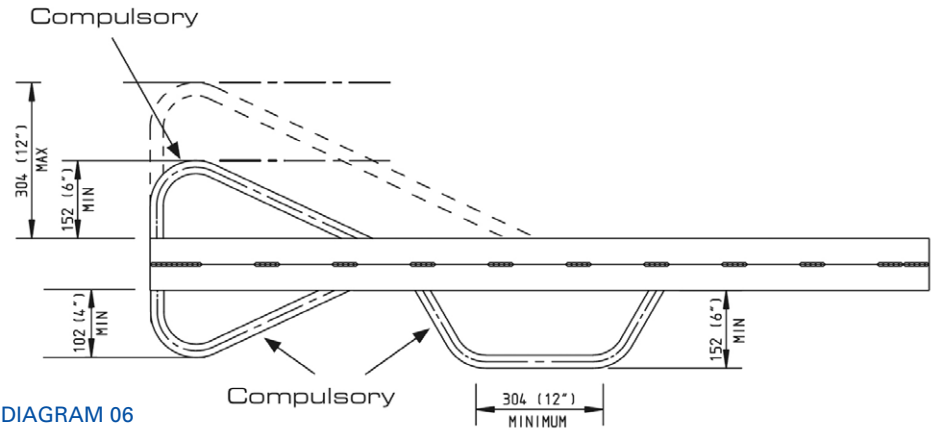

DIAGRAM 06

205.4 ***The lightening or drilling of any mandated specification material in the construction of the nerf rails and their brackets/bracing, unless explicitly detailed below, is NOT permitted.***

Nerf-Rail Blades Construction Specification

205.5 ***The nerf-rails MUST be constructed with an outer "blade" configuration similar in appearance to the front and rear bumpers.***

205.6 ***The nerf-rail outer blades MUST be constructed from a MINIMUM material specification of 50mm x 25mm RHS, or 30mm SHS, both with a MINIMUM wall thickness of 2.5mm. The use of CHS in the construction of nerf-rail blades is NOT permitted.***

205.7 ***Lengths of SHS/RHS must be welded together to form a vertical "blade" with a flat outer face.*** Example configurations are illustrated in Technical Diagram 07.

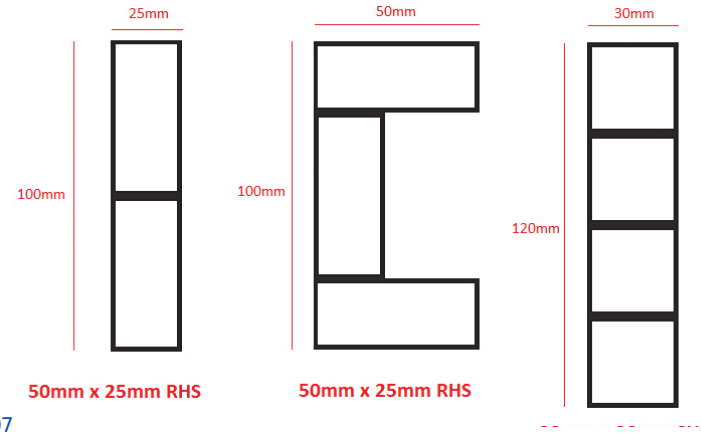

DIAGRAM 07

205.8 ***Nerf-rail blades MUST be no smaller than a MINIMUM of 25mm in thickness, and 100mm in depth.***

205.9 ***Nerf-rail blades MUST be no larger than a MAXIMUM of 50mm in thickness, and 150mm in depth.***

205.10 ***Nerf-rail blades MUST run for a MINIMUM length of 1,100mm, front to rear, at the minimum 100mm depth or greater. Tapering the ends of the nerf-rail blades is permitted, however any tapering below the minimum 100mm depth is not included as part of the minimum 1,100mm length specification.*** This is illustrated in Technical Diagram 08. ***Sharp pointed tapers are NOT permitted.***

Nerf Rail Dimensions

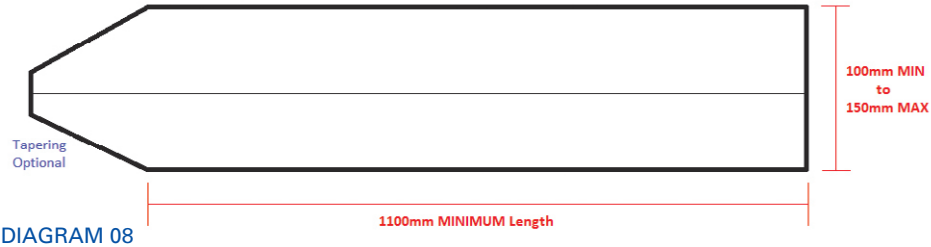

DIAGRAM 08

Nerf-Rail Blade Position

205.11 ***The nerf-rail blades must run longitudinally, from front to rear, between the wheels, and parallel to the ground.***

205.12 ***The nerf-rail blades must be broadly in line with the bumper blades.***

205.13 ***The vertical centre of the nerf-rail blade MUST be level with, or lower, than the vertical centre of the main chassis rail.***

205.14 ***The top edge of the nerf-rail blade MUST be level with, or within 25mm below, the level of the top of the front and rear bumpers.***

205.15 ***Nerf-rails must NOT extend past the wheels (when the car is fitted with normal dry running wheels) on the axle with the widest track width by more than 2in (50mm) on each side of the car. This gives a MAXIMUM total chassis width (excluding wheel-guards) of 72in (1828mm) if the MAXIMUM permitted track width is used.***

Nerf-Rail Blade Mounting/Bracing

205.16 ***The nerf-rail blade MUST be connected/braced to the main chassis rail, by a MINIMUM of four (in number) braces on each side of the car.*** This is illustrated in Technical Diagram 09.

205.17 ***The nerf-rail blade MUST be connected/braced to the lower under-chassis rail, by a MINIMUM of two (in number) diagonal braces on each side of the car.***

205.18 ***The 6 mandated braces MUST be constructed from a MINIMUM material specification of 25mm CHS/SHS, with a MINIMUM wall thickness of 2.5mm.***

Nerf Rail Bracing Example

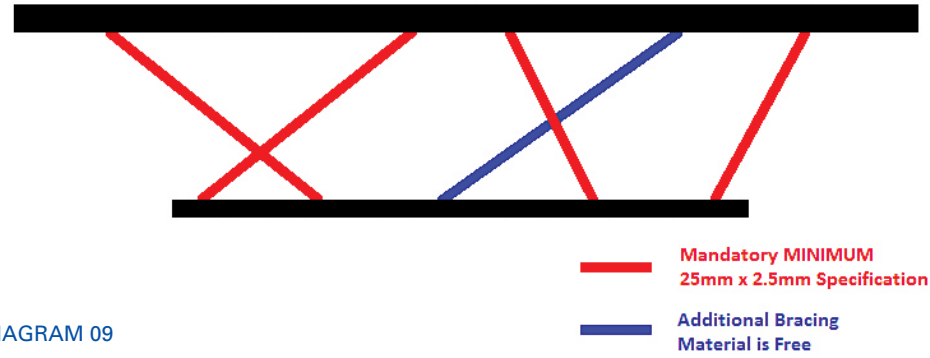

DIAGRAM 09

205.19 ***The crossing of braces is permitted.***

205.20 ***Where a side-pod is installed, it IS permitted to brace the nerf-rail to the side-pod construction material, rather than directly to the lower chassis rail on that side of the car.***

205.21 ***Additional bracing (over and above the 6 mandated braces above) is free in both quantity and material specification.***

Miscellaneous

205.22 ***Any additional brackets required for mounting the mandated wheel-guard MUST be in addition to the mandated minimum material dimensions above.***

205.23 ***The drilling and sleeving of a single circular hole at the rear of the nerf rail, with a MAXIMUM diameter of 35mm, for the express purpose of socket access to a wheel-guard mounting bolt is permitted.***

205.24 ***The cutting and sleeving of a square/rectangular hole within the nerf-rail blade face, for the purpose of mounting the wheel-guard through, is permitted. Any such hole must NOT be larger than a MAXIMUM of 75mm in height and 100mm in length.***

205.25 ***Any additional optional material attached to the nerf-rail, e.g. a fuel tank protection plate, or protection bars, must only be constructed within an area bordered by the main/lower chassis rails, the side-pod, the nerf-rail, the nerf-rail bracing to the main chassis, and a straight line connecting the lower outermost point of the side-pod to the lower innermost point of the nerf-rail.*** This is illustrated in Technical Diagram 10.

206 Wheel-Guards

206.1 A single solid steel wheel-guard MUST be fitted around the offside (right) rear wheel, from the rear bumper to the nerf-rail.

206.2 The wheel-guard MUST be similar in dimensions to the Ford Transit or Ford Escort rear leaf spring with a MAXIMIUM permitted height of 3in (75mm).

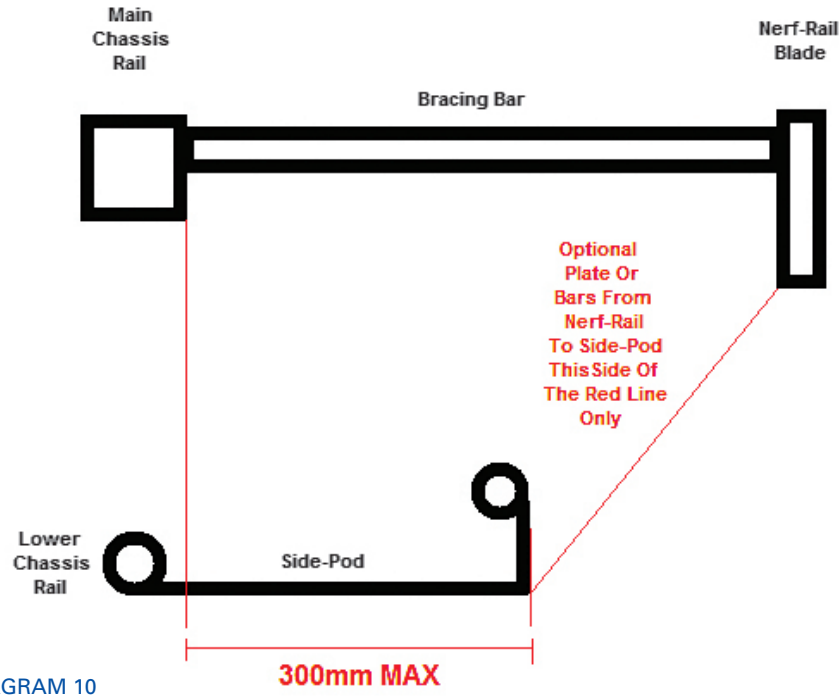

DIAGRAM 10

206.3 The wheel-guard MUST be bolted to its mounts at BOTH ends using high-tensile nuts and bolts of a MINIMUM 12mm diameter. Where an original leaf spring incorporating a rubber/polyurethane bush at one end is used as a wheel-guard and a mounting bolt runs vertically through the bush, a MINIMUM diameter 10mm bolt is permitted, but it MUST be mounted in double-shear. ***An example*** guide to fitment is illustrated in Technical Diagram 11.

206.4 It is recommended that, where possible, an element of protection for protruding bolt heads is incorporated with the aim of preventing them from being sheared off.

206.5 The drilling and/or lightening of the wheel-guard, except for mounting-bolt holes, is NOT permitted.

206.6 Where an original leaf-spring is used to form a wheel-guard, then any original mounting/location hole(s) in the leaf spring are permitted and should NOT be welded up (due to the heat of the welding process having a potentially adverse effect on the strength of the sprung-steel material).

206.7 The use of a single wheel-guard on the nearside (left) rear wheel is optional, but if fitted it MUST conform to the above rules.

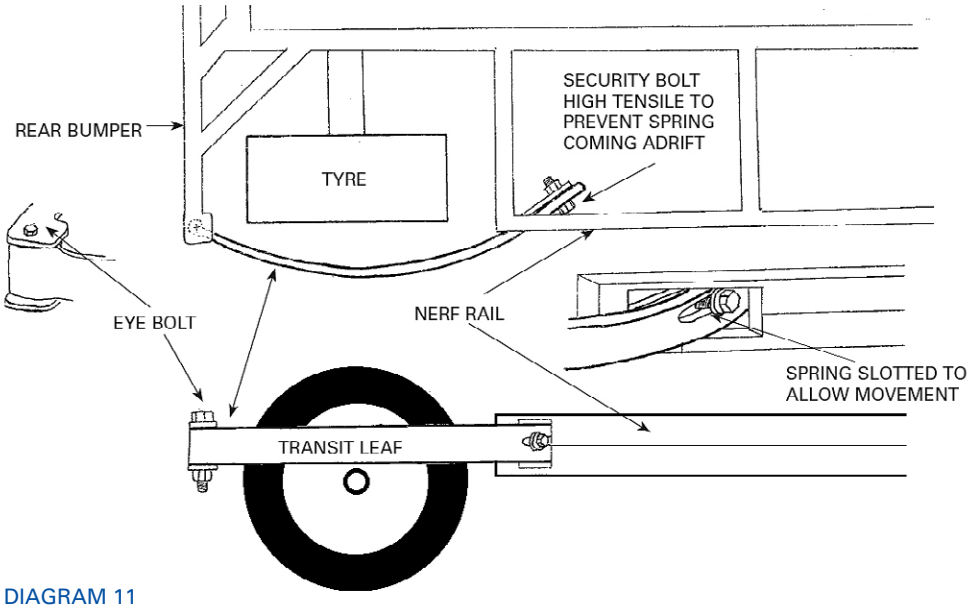

DIAGRAM 11

207 Engine Firewall

207.1 A complete firewall MUST be installed between the engine and the driver's compartment to help protect the driver from the possibility of burns from fire, fuel, oil or water.

207.2 The firewall MUST be made of metal.

207.3 The firewall MUST be complete except for minimal sized holes through which essential cables, pipes or the steering column are required to pass.

208 Floors and Side-Pods

General Rules

208.1 ***Exposed edges of plate, that could act in a knife-like manner are NOT permitted.***

208.2 ***Any chassis floor section must NOT extend outside of the footprint of the lower/under-chassis, unless explicitly permitted below, e.g. under a side-pod.***

208.3 ***The construction/installation of any floor section outside of the footprint of the main/lower chassis rails and cross-members, other than as specified below is NOT permitted. For example, steel plate around the left-front wheel area.***

Side Pods

208.4 ***The installation of any floor/side-pod section, outside of the footprint of the main/lower chassis rails is ONLY permitted for the purpose of mounting/protecting any fuel-tank and/or battery mounted in such a location.***

208.5 ***A MAXIMUM of one external side-pod/floor section, outside the main/lower chassis rails, is permitted on each side of the car.***

208.6 ***Any side-pod/floor must NOT extend any further than a MAXIMUM of 300mm out sideways from the vertical plane of the main chassis rail at any and all points.***

208.7 ***The MAXIMUM permitted front to rear length of any side-pod/floor section, outside of the main/lower chassis rails is 1,000mm at any and all points.***

208.8 ***Any side-pod/floor section, outside of the main/lower chassis rails, MUST only sit between the front and rear wheels, when viewed from the side/above.***

208.8.1 ***The side-pod/floor section MUST NOT be constructed any further forward than the vertical plane of the rear-most point of the front wheel/tyre (when pointed straight ahead).***

208.8.2 ***The side-pod/floor section MUST NOT be constructed any further rearward than the vertical plane of the front-most point of the rear wheel/tyre.***

208.9 ***The entire side-pod/floor section, outside of the main/lower chassis rails, MUST fit within an imaginary rectangular box measuring 1,000mm in length by 300mm in width,*** as illustrated in Technical Diagram 12.

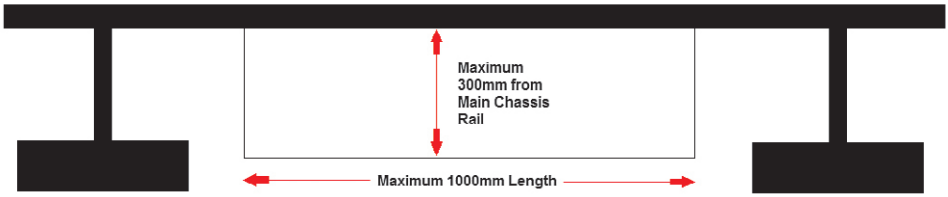

DIAGRAM 12

208.10 ***Any permitted side-pod/floor section outside the main/lower chassis rails must be constructed with no more than a SINGLE floor section, and no more than a SINGLE outer wall section.***

208.11 ***The "zig-zagging" or multiple folding of plate, or construction using multiple sections of plate, to form channels, multiple walls or floor sections, or additional internal wall or floor sections, or any other sections not for the purpose of supporting or protecting the fuel tank and/or battery is NOT permitted.***

Cab Floor

208.12 A solid floor MUST be installed in the driver's compartment (cab) ***to protect the driver.***

208.13 Where any part of the floor of the driver's compartment is below the bottom of the main chassis rails, OR there is not a full under chassis, the cab floor MUST be constructed of 3mm MINIMUM thickness steel plate. Aluminium is NOT permitted in this case.

208.14 Where the entire floor of the driver's compartment is above the bottom of the main chassis rails AND a full under chassis is present (i.e. lower rails extending to at least level with the front transverse edge of the driver's seat not including any leg side-supports/bracing), the cab floor MUST be constructed of either 3mm MINIMUM thickness aluminium plate (including chequered plate) or 3mm MINIMUM thickness steel plate.

208.15 The cab floor MUST extend rearwards ***between the vertical planes of the engine bulkhead firewall and the floor section's rearmost point*** for a MINIMUM distance of 600mm over its entire width.

208.16 The cab floor MUST extend rearwards BEYOND the point at which it overlaps in a vertical plane (across the entire width of the car) with the transverse front edge of the driver's seat (behind the driver's knees, not including any leg side-supports/bracing).

208.17 The cab floor MUST cover the full width of the area between the chassis rails along the floor's entire length.

208.18 The cab floor MUST be either welded to the chassis, or attached using a MINIMUM of eight (in number) high tensile 8mm nuts and bolts.

208.19 Cutting of the cab floor around the bell-housing and gearbox for fitment is permitted. NO other drilling or lightening is allowed.

208.20 The front edge of the cab floor may be angled upwards to prevent catching on high kerbs or other obstacles should car design require this.

208.21 ***The rear of the cab floor may be folded/curved up for strength, or to meet a seat/chassis cross-member, subject to the length requirements above.***

Sump-Guard

208.22 ***The use of a sump-guard is permitted, but it MUST be constructed from metal.***

Notes for 2019:

- ***From 1st January 2019, the MAXIMUM permitted thickness of the CAB FLOOR will be 4mm.***
- ***From 1st January 2019, the MAXIMUM permitted thickness of any other floor section, including any side-pod, will be 3mm.***
- ***From 1st January 2019, the MAXIMUM permitted thickness of any sump-guard will be 3mm for steel, and 5mm for aluminium. A MAXIMUM width may also be specified following further research.***
- ***From 1st January 2019, the construction/installation of any steel floor section, between the main chassis rails, forward of the driver/engine firewall, or rearward of the driver's seat, will NOT be permitted. The use of aluminium plate, on the sides or underneath the chassis, to prevent the ingress of dirt/shale that may clog up the radiator or other moving parts, will still be permitted.***

209 Foot Protection Plating

209.1 Where ANY part of the driver's legs or feet are located below the bottom of the main (top) chassis rail a vertical side protection plate of 3mm MINIMUM thickness steel MUST be welded between the main (top) and lower chassis rails to cover the entire side area of the driver foot-well on both sides of the car.

209.2 Where a driver's legs and feet are located entirely above the bottom of the main (top) chassis rails a vertical side protection plate of 2mm MINIMUM thickness steel MUST be welded between the main (top) chassis rail and the level of the main cab window side-bars to cover the entire side-area of the driver's legs/feet position.

209.3 Where a driver's feet are located such that they are both above and below the main (top) chassis rails then steel vertical side protection plates MUST be mounted BOTH between the main (top) and lower chassis rails, AND between the main (top) chassis rail and the level of the main cab window side bars. These protection plates MUST conform to the individual plate rulings above.

209.4 In all cases, the side protection plate MUST extend rearwards from the engine bulkhead firewall in front of the driver's feet for a MINIMUM distance of 500mm over its entire height.

209.5 In all cases, the side protection plate MUST extend rearwards to a point such that its ENTIRE rear edge is located level with or behind the vertical plane from the transverse front edge of the driver's seat (behind the driver's knees, not including any leg side-supports/bracing).

209.6 The side protection plates must NOT be drilled or lightened in any way, except for minimal sized holes through which essential electrical cables or fuel pipes are required to pass.

210 Driver's Seating & Harness

210.1 Driver

210.1.1 The driver MUST be seated along the centre-line of the car.

210.1.2 The driver MUST be seated in front of the rear axle.

210.1.3 ALL parts of the driver's body MUST be entirely behind the rear of the engine cylinder block.

210.1.4 The driver MUST be able to exit the car through BOTH sides of the cab whilst wearing all safety equipment used for racing (e.g. Helmet, overalls, gloves, head/neck restraint).

210.1.5 It is strongly recommended that the driver ensures there is a MINIMUM 100mm gap between the steering column support cross-member and the driver's legs when seated in the normal driving position.

210.2 Seat

210.2.1 The seat MUST be of a bucket type design, incorporating side-support for the driver's body.

210.2.2 ***The seat MUST be upright when viewed from the front/rear of the car.***

210.2.3 The seat MUST be securely fitted to the car along the car's centre-line ***to a tolerance of +/-5mm either side from centre.***

210.2.4 Central fitment is measured by taking the distance from the transverse horizontal centre of the seat to the inside edge of the main chassis rail ***on each side of the car***. This distance MUST be equal on both sides of the car to within +/-10mm ***of each other***, i.e. the two measurements MUST be within 10mm of each other***, thus giving a maximum tolerance of central fitment of +/-5mm from the centre-line of the car***. BOTH the front and rear edges of the seat MUST be within the stated tolerances.

210.2.5 The seat MUST be securely fitted to the car using high-tensile bolts of a MINIMUM 8mm in diameter.

210.2.6 The seat MUST be supported/protected at the base, back and any integral headrest to prevent major deformation and/or movement in a high-energy impact.

210.2.7 Any cross-member(s)/support-bar(s) for mounting/supporting/protecting the seat MUST be integral to the chassis/roll-cage structure and be fully welded at all joints.

210.2.8 ***Any lower cross-member installed for the purpose of mounting the seat is permitted to drop down below the level of the main chassis rails or be profiled to the seat to allow for correct fitment.***

210.2.9 ***The seat MUST be fitted to the car in accordance with the individual seat manufacturer's/supplier's fitting instructions, and particular attention MUST be paid to key items such as the fittings used, the seat angle, and the layback, etc.***

210.3 Seat protection Plate

210.3.1 A rectangular steel protection plate MUST be bolted to the base of the seat, or welded to the chassis directly under the seat to protect the driver from the rear-axle, differential, and prop-shaft.

210.3.2 The protection plate MUST be a MINIMUM of 3mm in thickness, and measure a MINIMUM of 350mm wide along its entire length, and a MINIMUM of 250mm front to back across its entire width.

210.3.3 The protection plate must NOT be drilled, lightened, or modified in any way other than to mount it to the seat/chassis.

210.4 Headrest

210.4.1 Two "headrest" bars MUST be installed behind the driver's head/helmet to either (i) support and protect the headrest of a fully integral racing seat, or (ii) allow the mounting of a mandatory headrest plate in cases where the seat does not incorporate a headrest. These headrest bars MUST be symmetrical and run in a top to bottom orientation when viewed from the rear. Care should be taken to ensure they do not impede the safe installation of the driver's safety harness.

210.4.2 The headrest bars MUST be constructed of steel, be an integral part of the roll-cage construction, and be fully welded to cross-members at the top and bottom. Example designs are illustrated in Technical Diagram 13.

210.4.3 The headrest bars must NOT protrude from the main roll-cage in side-profile (pillars 3 & 4).

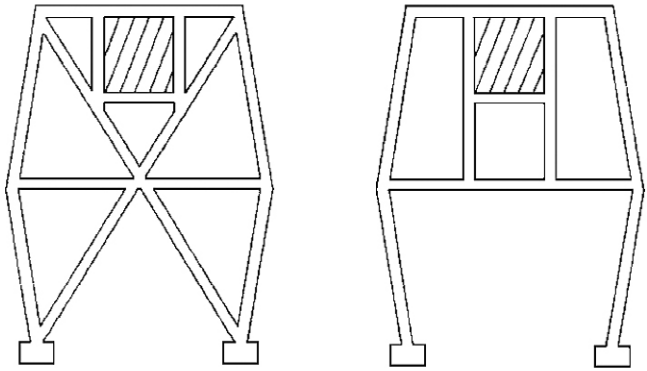

DIAGRAM 13

210.4.4 If the driver's seat does not incorporate an integral headrest, then a steel headrest plate MUST be fitted.

210.4.5 The headrest plate MUST be welded along its left and right vertical edges to the two headrest bars located behind the driver's head/helmet (specified above).

210.4.6 The headrest plate MUST be a MINIMUM of 3mm thick steel plate.

210.4.7 The headrest plate MUST measure between 150mm and 200mm square.

210.4.8 The headrest plate must NOT be drilled, lightened, or modified in any way.

210.4.9 It is recommended that the headrest plate be padded with dense fire-resistant foam to offer impact protection for the driver's head/helmet.

210.4.10 The headrest bars and any headrest plate MUST be located within the roll-cage profile such that a horizontal straight-edge can be simultaneously butted up against the left rear and right rear roll-cage corner pillars (pillars 3 & 4) at any point along their profile length, from where they meet the main chassis at their base, to the roof-bars at the top. Any headrest bar and/or headrest plate preventing a horizontal straightedge from contacting the left and right rear roll-cage pillars simultaneously is NOT permitted.

210.5 Safety Harness

210.5.1 The car MUST be fitted with a quick-release motorsport type safety harness to hold the driver in to the seat.

210.5.2 The safety harness MUST be worn at all times when on track, racing or practising.

210.5.3 Rules regarding the correct specification, fitment, and use of the safety harness are produced by the ORCi to ensure consistency and best practice across all oval formulas. The ORCi safety specification rules are detailed separately in the rulebook, and unless explicitly stated below, the ORCi rules apply.

210.5.4 The safety harness MUST consist of a MINIMUM of two separate shoulder straps, two separate lap straps, and an "anti-submarine" crotch strap (sometimes referred to as a sub-strap). The safety harness MUST be of either a 5-point or 6-point design.

210.5.5 The safety harness MUST be anchored to the car's chassis by one of the following methods:

- Attached to bolt-on or weld-on purpose-made ringed harness eyelets using the harness manufacturer's original components, and to their specification.
- Securely buckled around integral roll-cage or chassis cross-members using the harness manufacturer's original components, and to their specification. Any such cross-member(s) MUST be welded to other fixed chassis/roll-cage bars at both ends such that the safety harness cannot become detached, and MUST conform to the MINIMUM roll-cage material specifications.
- Attached as per original installation instructions provided by the harness manufacturer. The driver MUST be able to demonstrate installation conformance to manufacturer's instructions if requested by BriSCA F2 and/or its appointed officials.

210.5.6 The harness must NOT be mounted or attached to the seat protection plate.

210.5.7 The safety harness MUST be installed using standard original manufactured hardware designed for this purpose, e.g. mounting eyes and buckles. The use of chain, D-links, karabiners, or other non-approved components not originally designed for harness installation is NOT permitted.

210.5.8 A MAXIMUM of one strap attachment is permitted to any single bolted mount point or bolt/weld-on ringed harness eyelet, e.g. separate lap and anti-submarine belts must NOT be mounted to the same eyelet. It is permitted to mount multiple straps around a single integral cross-member, e.g. the shoulder belts to a cross-bar.

210.5.9 The shoulder straps MUST be supported at shoulder level to prevent deformation/compression of the seat and driver injury in a high-energy impact.

210.5.10 All anchorage points MUST be easily accessible for scrutineering purposes.

210.5.11 It is strongly recommended that all seat apertures through which the safety harness passes are lined to prevent chaffing of the straps.

210.6 Driver Protection

210.6.1 All chassis cross-members located between the engine firewall and the transverse front edge of the driver's seat, which may be impacted by the driver's legs (and especially the shins) during an impact, MUST be protected by high-density foam with the intention of preventing leg injuries.

210.6.2 ***The rear axle/differential/prop-shaft must NOT be able to contact the driver's seat if the rear shock absorbers are disconnected and/or compressed to their maximum compression point.***

211 Foot Pedals

211.1 The car MUST have only ONE pedal each to operate the clutch, brake and throttle.

211.2 Left-foot braking is NOT permitted.

211.3 The clutch pedal MUST be fitted to the LEFT side of the bell-housing/gearbox where the floor of the cab is located below the level of the main gearbox input shaft.

211.4 The clutch pedal MUST be fitted to the LEFT side of the car's centre-line where the floor of the cab is located above the level of the main gearbox input shaft.

211.5 The brake and throttle pedals MUST be fitted to the RIGHT side of the bell-housing/gearbox where the floor of the cab is located below the level of the main gearbox input shaft.

211.6 The brake and throttle pedals MUST be fitted to the RIGHT side of the car's centre-line where the floor of the cab is located above the level of the main gearbox input shaft.

211.7 Where the floor of the cab is located above the level of the main gearbox input shaft a metal panel MUST be fitted between the clutch and brake pedals to prevent the driver from using their left foot on the brake pedal.

212 Track Width

212.1 Track Width

212.1.1 The track width of an axle is measured in the vertical plane along the transverse centreline of the axle and is the measurement between the outermost extremities of the tyre/wheel assemblies on that axle. The measurements EXCLUDE any wheel-guards.

212.1.2 The MAXIMUM permitted track width is 68in (1728mm) for both the front and rear axles.

212.1.3 The track width MUST be set such that the axle would pass in a straight line between two fixed posts/walls that are 68in (1728mm) apart.

212.2 Checking Procedure

212.2.1 In practice the nerf-rails (which are permitted to extend beyond the edge of the tyres) may physically prevent the passing of the car between two fixed posts/walls. Checking of this rule may therefore be carried out using a fixed width gauge placed over/around the wheels and tyres.

212.2.2 The gauge MUST be able to fit over the wheels/tyres with NO forced deflection of the tyre/wheel assembly.

212.2.3 Forced deflection of the tyre/wheel assembly in order to make the gauge fit is regarded as a FAILURE to adhere to the rules.

212.3 Track Width Penalties

212.3.1 The penalties for track width infringements are detailed in ***the Technical Infringement Penalties section of the rulebook***.

213 *Suspension* – Shock Absorbers (Dampers) and Springs

213.1 Shock Absorbers (Dampers)

213.1.1 A MAXIMUM of one shock absorber ***(damper)*** per wheel/corner is permitted.

213.1.2 A MAXIMUM of four shock absorbers per car are permitted.

213.1.3 Mono-tube shock absorbers are NOT permitted for use.

213.1.4 Remote reservoirs are NOT permitted for use.

213.1.5 A MAXIMUM of ONE adjustment device per shock absorber is permitted.

213.1.6 ***The mounting of shock-absorbers in-board or out-board of the main chassis rails is permitted.***

213.1.7 ***Each individual shock absorber (damper) MUST be mounted predominantly below the level of the main chassis rails. In practice this means that at least half the length of each shock absorber (measured between the centre of the top and bottom mounting bolts/bearings/brackets), when the car is at rest, must be below the top of the main chassis rail adjacent to where the shock absorber is mounted.***

213.2 *Springs*

213.2.1 ***A MAXIMUM of one spring per wheel/corner is permitted. This may EITHER be a single coil spring, OR a single leaf spring unit (see below).***

213.2.2 ***A multi-leaf spring in a single unit counts as a single spring for the purpose of these rules.***

213.2.3 ***A MAXIMUM of four springs per car are permitted – one per corner.***

213.3 Coil Springs

213.3.1 Coil springs MUST be made of steel.

213.3.2 Conical coil springs are NOT permitted.

213.3.3 Coil springs MUST be constant in internal and external diameter over their entire length, i.e. they must NOT taper in or out at any point.

213.3.4 Coil springs MUST be constant in diameter of the spring material over their entire length.

213.3.5 The use of helper springs is NOT permitted.

213.3.6 ***If a coil spring is mounted independently to a shock absorber (damper) then it MUST be mounted predominantly below the level of the main chassis rails. In practice this means that at least half the length of the coil spring (measured between the top and bottom faces of the spring, when the car is at rest, must be below the top of the main chassis rail adjacent to where the coil spring is mounted.***

213.4 Leaf Springs

213.4.1 Leaf springs MUST be made of steel.

213.4.2 Rear-axle leaf springs MUST be mounted longitudinally, outside of the chassis rails. Transversely mounted leaf springs are NOT permitted on the rear-axle.

213.4.3 The front (chassis) mount of any rear-axle leaf spring MUST be fixed. Sliding mounts are NOT permitted.

213.4.4 Front-axle leaf springs may be mounted longitudinally, or transversely.

213.5 Device Adjustment

213.5.1 Any devices which allow adjustment of the spring platforms, shock absorbers, and/or anti-roll bar(s) by the driver from within the cab are NOT permitted.

214 Front Axle/Suspension

214.1 Axle

214.1.1 It is permitted to use either a solid beam-axle, or an independent design for the front axle/suspension.

214.1.2 Front uprights, brake discs and hubs must NOT be offset in any way.

214.1.3 Differing King-pin inclinations are permitted on each side of the car.

214.1.4 The use of bird-cage fitments is NOT permitted.

214.2 Independent Front Suspension

214.2.1 The top wishbones (including any spherical bearings/rose-joints) MUST be of equal length on both sides of the car. This measurement is taken from the centre of the bearing/pivot point on the upright mounting, to the centre of the bearing/pivot point axis on the chassis mounting.

214.2.2 The top wishbone mounting brackets MUST be of equal length on both sides of the car.

214.2.3 Camber MUST only be set/adjusted by altering the length of the bottom wishbone/track control arm.

214.2.4 ***ALL independent front suspension mounting components, including but not limited to bottom arms, compressions struts, wishbones, and shock absorber rockers MUST ONLY be mounted to the chassis (at the component's pivot point) on the same side of the chassis centre-line as the wheel they support.***

214.3 Solid Beam Axle

214.3.1 Beam axles MUST be centrally fitted transversely in the chassis ***to a tolerance of +/-5mm either side from the centre.***

214.3.2 Central fitment will be measured using the distance from the rotational centre at the top of the king-pins to the outside edge of the main chassis rails ***on each side of the car*** when viewing the car from the front. This distance MUST be equal on both sides of the car to within +/-10mm ***of each other***, i.e. the two measurements MUST be within 10mm of each other***, thus giving a maximum tolerance of central fitment of +/-5mm from the centre-line of the car.***

214.3.3 The alteration of camber angles is permitted.

214.3.4 The use of a 2-piece beam axle is permitted, but the 2 sections MUST be securely fastened together to prevent them coming apart.

214.3.5 ***Radius arms mounting the beam axle to the chassis must NOT cross the centre-line of the chassis.***

214.4 Hubs

214.4.1 Front hubs MUST be made of a ferrous material.

215 Rear Axle/Suspension

215.1 Axle

215.1.1 The rear axle MUST be of rigid normal production type (similar in pattern to the Ford Escort Mk1/2).

215.1.2 The rear axle must NOT be wider than the Ford Cortina Mk3/4/5 axle when measured from the outside of wheel flange to wheel flange.

215.1.3 The axle tubes (between the differential carrier and the end flanges) MUST be of equal length.

215.1.4 The rear wheels must NOT be cambered in any way.

215.2 Axle Alignment

215.2.1 The rear axle MUST be centrally fitted transversely in the car ***to a tolerance of +/-5mm either side from centre***.

215.2.2 Central fitment is measured by taking the distance from the inner edge of the rear wheel rim to the outside edge of the main chassis rail ***on each side of the car***. This distance MUST be equal on both sides of the car to within +/-10mm ***of each other***, i.e. the two measurements MUST be within 10mm of each other***, thus giving a maximum tolerance of central fitment of +/-5mm from the centre-line of the car.***

215.2.3 Steering of the rear axle by lengthening or shortening the wheelbase is permitted.

215.3 Half-Shafts

215.3.1 The half-shafts MUST be of equal length.

215.3.2 It is strongly recommended that the bearing retaining collar on the nearside (left) is tack welded to the half-shaft to prevent it pulling out.

215.4 Fitting/Installation

215.4.1 The rear axle MUST be installed and sprung (i) using leaf springs, with anti-tramp bars if required, or (ii) by a traditional 4-link method using two separate link bars on each side of the car with coil-over springs and a lateral location device.

215.4.2 The 3-link method of axle installation is NOT permitted.

215.4.3 ALL rear axle mounting/location components MUST be fitted OUTSIDE of the vertical planes taken from the inner edges of the main chassis rails. NO rear axle mounting/location components may be fitted inside/between the inner edges of the chassis rails with the exception of (i) a Panhard Bar or Watts Linkage (see below), and/or (ii) in-board mounted coil-over shock absorbers (see below).

215.4.4 ***The rear axle*** MUST be installed and fitted such that the failure***/ disconnection*** of any one mount/joint will not cause the axle to rotate at any time (either when static, or under load) resulting in the differential/prop-shaft hitting the seat.

215.4.5 ***The rear axle/differential/prop-shaft must NOT be able to contact the driver's seat if the rear shock absorbers are disconnected and/or compressed to their maximum compression point.***

215.4.6 ***It is permitted to add additional material (e.g. a piece of RHS, or a dense rubber block) to the underside of the chassis rail, or the top of the axle casing, in order to prevent contact with the seat.***

215.5 Mountings

215.5.1 All rear axle mounting components (including, but not limited to, link, anti-tramp, Panhard and Watts Linkage bars) MUST be bolted to separate fixed points on the chassis and axle.

215.5.2 Bolting/mounting more than one component to a single point is NOT permitted.

215.5.3 The use of rotating, sliding, or other minutely adjustable mounting devices, or any slotted mounts is NOT permitted – This includes, but is not limited to, the use of vertically mounted bolts with replaceable/removable washers/spacers that would allow height adjustment of the end of a link bar, even if only a single bolt/set of chassis holes is utilized.

215.5.4 The use of over-size mounting holes (in relation to the bolt size) and/or undersize bolts (in relation to the mounting holes) is NOT permitted.

215.5.5 The use of original, or modified, adjustable mounting components, e.g. aluminium sliders, is NOT permitted, even if mounted to fixed points.

215.5.6 The use of any "changeable specification mounting component" design is NOT permitted. This includes, but is not limited to:

- The use of changeable plates incorporating the mounting holes.
- Multiple mounting locations that would require the removal and installation of different length link bars.
- Adjustable length link bars. (The normal small range of link bar adjustment provided by a standard design rose-joint is permitted).
- Vertically mounted bolts for rose-joints with changeable varying thickness washers/spacers.

215.6 Link Bars and Anti-Tramp Bars

215.6.1 All rear axle link and anti-tramp bars MUST be constructed of steel or aluminium, and, where required, utilise steel or aluminium rose-joints/bearings.

215.6.2 All rear axle link and anti-tramp bars MUST be of solid fixed-length construction, such that their length cannot change/be changed under load during racing (i.e. NO springs, damping or telescopic devices).

215.6.3 The use of adjustable mounting bearings (e.g. a threaded rose-joint) at the end(s) of a link or anti-tramp bar that allows total length adjustment off-track is permitted.

215.6.4 The use of rubber or polyurethane bushes in the mounting of rear axle link and anti-tramp bars is permitted.

215.7 Lateral Location

215.7.1 Lateral location of the rear axle may be achieved by the use of a Watts Linkage, or Panhard Bar only.

215.7.2 Any Panhard Bar or Watts Linkage MUST be fitted behind the axle casing and below the main chassis rails.

215.7.3 The use of an A-Frame for lateral rear axle location is NOT permitted.

215.8 Strengthening

215.8.1 The rear axle casing may be strengthened through the use of welded or bolted-on bracing. The use of adjustable bracing is permitted.

215.8.2 The use of links incorporating rose-joints or other threaded/ adjustable bearings/fixings/fittings is permitted for the purpose of strengthening the casing, and/or adjusting out race-damage and the effects of heat from welding brackets etc.

215.8.3 The use of rubber/poly bushes in a bolted brace, to allow a small amount of flex under shock load, is permitted.

215.9 Torque Arms/Birdcages

215.9.1 The use of torque arms is NOT permitted.

215.9.2 The use of bird-cage fitments is NOT permitted.

216 Wheel Rims and Wheel-Nuts

Wheels

216.1 All cars MUST have 4 wheels.

216.2 Wheel rims MUST be made of steel or alloy.

216.3 An alloy wheel rim, if used, MUST be a genuine Ford original rim, or, a replacement competition-type manufactured rim.

216.4 All wheel rims MUST remain as originally manufactured unless explicitly stated below.

216.4.1 The machining and/or modification of original Ford road-wheel rims, changing them from their original Ford manufactured design, is NOT permitted.

216.4.2 The machining or modification (post retail purchase) of competition-type wheel rims, changing them from their original design / manufacturer-supplied specification, is NOT permitted.

216.4.3 Examples of prohibited machining/modification include, but are not limited to:

- Radial machining to remove spoke material
- Radial machining to remove material to allow the fitment of larger brakes
- Changing material thickness
- Machining the hub face to alter the original manufactured back-depth.

216.5 The banding of steel wheel rims, and/or the narrowing of steel/alloy wheel rims, is permitted. Where a wheel rim is narrowed then any such work must ONLY be undertaken on the inner portion of the rim, i.e. the section of rim between the hub/spokes and the chassis rail.

216.6 Small repairs to the outer bead or radial sections of wheel rims are permitted.

216.7 Repairs to the spoke/hub sections of wheel rims, and/or major structural repairs are NOT permitted on safety grounds, and any wheel rims requiring such repairs must NOT be used.

216.8 Wheel rim widths MUST be equal on BOTH ends of each axle, but may vary between the front and rear axles.

216.9 The MAXIMUM permitted front wheel rim width is 5½J.

216.10 There is no MAXIMUM or MINIMUM limit on rear wheel rim width.

216.11 Wheel back-depths MUST equal on BOTH ends of each axle, but may vary between the front and rear axles.

216.12 Wheel spacers are NOT permitted on any wheels or axles, whether loose, welded, bonded or bolted.

Open Wheel-Nuts

216.13 The use of open wheel-nuts is permitted, but all open wheel-nuts MUST be the correct fitment for the wheel rim design and length of stud used.

216.14 ALL threads of open wheel-nuts MUST visibly engage with the threads of the wheel studs being used.

Closed Wheel-Nuts

216.15 The use of closed wheel-nuts is permitted, but all closed wheel-nuts MUST be the correct fitment for the wheel rim design and length of stud used, e.g. Revolution "tube" nuts, or original Ford wheel-nuts.

216.16 The scrutineer, or other appointed BriSCA technical official reserves the right to request the removal of any wheel nuts for closer inspection of the engaged threads to ensure adequate safety.

217 Tyres

Yokohama Tyre – Delivery Star RY818

217.1 ***The Yokohama Delivery star RY818, labelled as "175R13C – 8PR 97/95P – Delivery Star RY818" MUST be used on the RIGHT REAR wheel (fence-side) only, on ALL cars, on ALL surfaces, subject to the limitations below. [Note: The implementation date of this mandatory requirement will be announced early in 2018, with an appropriate notice period].***

Yokohama Tyre – A021R

217.2 ***The Yokohama A021R tyre, labelled as "185/70R13 A021R" (Pre-2015) or "175/590R13 A021R" (2015-on) may be used in its original form, on the front axle and/or the LEFT REAR wheel (kerb side) only, subject to the limitations below.***

Avon Tyre – 7.3

217.3 The **Avon Wide Safety GT 7.3x13** tyre may be used in either treaded or slick form, on the front axle, and***/or*** the LEFT REAR wheel only, subject to the following limitations:

217.3.1 **Slicks**. The manufactured slick form of the Avon tyre may be used at any meeting, but on the FRONT axle only.

217.3.2 ***Treads. The manufactured treaded form of the Avon tyre may be used at any meeting on the front axle, and/or the LEFT REAR wheel (kerb side) only.***

217.3.3 **Hardness.** The tyre hardness, measured by a durometer, MUST ***read*** 40 or above at ALL times.

Hardness checking procedure:

- The tyre will be cleaned by hand across the tread.
- The scrutineer or appointed BriSCA F2 Technical Officer will take three durometer readings across the tyre and produce a mean average.
- A mean average below 40 will render the driver liable to penalty.

Tyre hardness penalties:

- The penalties for tyre hardness infringements are detailed in ***the Technical Infringement Penalties section of the rulebook***.

Yokohama Tyres – ALL

217.4 The use of tyre softener, ***chemicals, contaminants,*** tyre treatment of ANY kind, ***modification,*** and/or tampering with the compound of ***any Yokohama tyre*** in any way (chemical, physical, or biological) is NOT permitted.

Softener/treatment*/modification* checking procedure:

- A chemical "sniffer" may be used to check for the presence of softener, ***chemicals, contaminants,*** or treatment products.
- A tyre sample may be taken away for laboratory testing for the presence of softener, ***chemicals, contaminants,*** or treatment products.

Softener/treatment*/modification* penalties:

- The penalties for tyre infringements are detailed in ***the Technical Infringement Penalties section of the rulebook***.

ALL Tyres

217.5 ***BriSCA F2 reserves the right to change the mandated location on the car of the Delivery Star RY818 tyre, and thus the resulting location(s) of the other tyre options, during the course of the season, with an appropriate notice period of at least 14 days.***

217.6 The same tyre type***/model*** MUST be used on each ***end of the front*** axle, but may vary between the front and rear axles.

217.7 Tyres must NOT be re-cut, or have their tread pattern altered by siping of the tread blocks.

217.8 Tyre identification marks must NOT be removed.

217.9 Mechanical tyre buffing and surforming is permitted on ***all*** permitted tyre types in order to clean up the feathered edges of the tread blocks.

217.10 The use of a standard rubber inner-tube as a method of inflating and maintaining pressure in a tyre is permitted.

217.11 The use of a bead-lock inner-tube, inner-liner, or any other internal device within a tyre is NOT permitted.

217.12 Tyre gaiters may be used on one or both axles subject to the following conditions:

217.12.1 Tyre gaiters MUST ONLY be used on the outside edge of the wheel/tyre assembly – furthest from the chassis.

217.12.2 Tyre gaiters must NOT be used on the inside edge of the wheel/tyre assembly – nearest to the chassis.

217.12.3 If used, tyre gaiters MUST be used on BOTH wheels on an axle. The use of a tyre gaiter on only one wheel on an axle is NOT permitted.

217.12.4 Tyre gaiters are included within the overall track width measurement rules and MUST therefore pass within any measurement gauges.

217.13 If a tyre check is requested the driver MUST proceed directly round the track to the checking location without delay, otherwise the tyres will be considered illegal.

218 Brakes

218.1 A working brake system MUST be fitted.

218.2 Any braking system may be used***, subject to the rules below,*** but it MUST be in working order.

218.3 ***Master Cylinder***

218.3.1 ***Only a SINGLE braking system master cylinder, with a single bore/piston, single circuit, and single outlet is permitted.***

218.3.2 ***The installation/use of multiple master cylinders is NOT permitted.***

218.3.3 ***The installation/use of a master cylinder unit with multiple circuits is NOT permitted.***

218.3.4 ***The installation/use of a master cylinder unit with multiple or differential bores/pistons is NOT permitted.***

218.3.5 ***The MAXIMUM permitted master-cylinder bore size is $1^{1}/_{8}$ inches (28.58mm).***

218.4 ***Bias Valves/Levers/Reducers***

218.4.1 ***Only a SINGLE brake-bias/pressure-reducer/fluid-pressure adjustment device, valve, or lever, with a single input and single output is permitted.***

218.4.2 ***The installation/use of multiple reducers, bias adjusters, or other brake performance altering devices is NOT permitted.***

218.4.3 ***The installation/use of adjusters with multiple input/output connections, and/or multiple bores is NOT permitted.***

218.4.4 ***The installation/use of on/off brake taps is NOT permitted anywhere on the car.***

218.4.5 ***The installation/use of electrically operated bias/shut-off/reduction valves is NOT permitted.***

218.4.6 ***The installation/use of in-line (residual) pressure valves is NOT permitted.***

218.5 ***Discs and Callipers***

218.5.1 All brake callipers MUST be made of ferrous material.

218.5.2 All brake discs MUST be made of ferrous material.

218.5.3 The MAXIMUM permitted brake disc diameter is 260mm.

218.5.4 Where a brake calliper is not present for a wheel, the FULL-SIZE original disc MUST remain on the hub/axle/drive-shaft, and the disc MUST be securely attached to the hub/axle/drive-shaft using a MINIMUM of 2 threaded bolts, such that it is prevented from detaching from the axle in the event of a wheel loss.

219 Transmission/Final Drive

219.1 Materials

219.1.1 Gearbox casings and differential housings MUST be made of a ferrous material.

219.1.2 Aluminium alloy bell-housings, tail-housings, and the Morris 1000 rear axle are permitted.

219.2 Gearboxes

219.2.1 Quick ratio change gearboxes (defined as gearboxes where ratios are changeable without removing the gearbox from the car) are NOT permitted.

219.2.2 Replacement gear kits with different ratios to the original manufacturer's specification are permitted, e.g. Quaife or Tran-X.

219.3 Bell-Housing

219.3.1 ***The bell-housing MUST be an original Ford specification component, or a commercially available aftermarket direct replacement.***

219.3.2 ***The bell-housing MUST remain as per its original manufactured specification, subject to any permitted/required modifications detailed below.***

219.3.3 ***The bell-housing MUST fully enclose the clutch/flywheel assembly around its entire circumference, from the vertical plane of the rear of the engine block to the face of the gearbox.***

219.3.4 ***The use of an "open–bottomed" bell-housing that does not completely encircle/enclose the flywheel/clutch assembly is NOT permitted.***

219.3.5 ***The removal of material from the bottom of the bell-housing, in order to lower the bell-housing/engine in the car, or for any other purpose, is NOT permitted.***

219.3.6 A single hole of 25mm diameter MUST be drilled in the bell-housing on all cars to allow inspection of the flywheel and clutch by an appointed ***official***. On ***Zetec engines*** this hole MUST also allow flywheel sensor inspection.

219.3.7 The removal of a minimal amount of material from the integral starter-motor housing of an aluminium alloy bell-housing to enable access to the clutch cable is permitted. Blatant / excessive lightening in this area, or actions affecting the structural integrity of the bell-housing are NOT permitted.

219.3.8 The bell-housing must NOT be drilled, lightened ***or modified*** in any way***, other than as detailed above.***

219.4 Differentials

219.4.1 Differentials may be un-locked, locked, or of the limited-slip design.

219.4.2 The use of non-ferrous materials for internal differential components is permitted.

219.4.3 Only original specification standard production differential ratios may be used in the ratio range from 3.5:1 to 4.44:1. For example, the Volvo 3.73:1, BMC 3.90:1, and Ford 4.125:1 are all permitted within this rule, as are other standard ratios (within the above range) produced by these and other car manufacturers.

219.4.4 The removal of material from the differential housing/casing, e.g. excess webbing, is permitted, providing that the safety of the component is NOT compromised.

219.5 Prop-shaft Hoop(s) / Tunnel

219.5.1 Where the rear of the gearbox tail-shaft (or drive flange for gearboxes without a tail-shaft), is located behind the transverse front edge of the driver's seat (behind the driver's knees, not including any leg side-supports/bracing), a MINIMUM of 1 steel hoop MUST be fitted around the prop-shaft, attached to the seat base, chassis rail(s), a chassis cross-member, or a steel cab floor, designed to catch the prop-shaft in the event of a breakage.

219.5.2 Where the rear of the gearbox tail-shaft, (or drive flange for gearboxes without a tail-shaft), is located in front of the transverse front edge of the driver's seat (behind the driver's knees, not including any leg side-supports/bracing), a MINIMUM of 2 steel hoops MUST be fitted around the prop-shaft, one at each end, attached to the seat base, chassis rail(s), a chassis cross-member, or a steel cab floor, designed to catch the prop-shaft in the event of a breakage.

219.5.3 As an alternative to prop-shaft hoop(s), the use of a prop-shaft tunnel is permitted.

219.5.4 All prop-shaft hoops MUST be constructed from a MINIMUM material size of 25mm x 3mm flat bar, and be secured either by welding or the use of 8mm MINIMUM size high-tensile nuts and bolts.

219.5.5 All prop-shaft tunnels, where prop-shaft hoops are not installed, MUST be constructed from 3mm MINIMUM thickness steel plate, and be secured to the gearbox, chassis, or steel cab floor either by welding or the use of a MINIMUM of four (in number) high tensile 8mm MINIMUM size nuts and bolts.

219.5.6 A prop-shaft tunnel along the entire length of the prop-shaft is a permitted alternative to the 2-hoop requirement. Where the rear of the gearbox tail-shaft, (or drive flange for gearboxes without a tail-shaft), is located in front of the transverse front edge of the driver's seat (behind the driver's knees, not including any leg side-supports/bracing), and only a partial length prop-shaft tunnel is fitted on one end, then a MINIMUM of 1 steel hoop MUST also be installed around the opposite end of the prop-shaft.

219.5.7 ***Any folded/curved-up section of the cab floor does NOT constitute one of the mandated prop-shaft hoops.***

219.5.8 **Venray (Netherlands) Only** – In all cases where the rear of the gearbox tail-shaft, (or drive flange for gearboxes without a tail-shaft), is located in front of the transverse front edge of the driver's seat (behind the driver's knees, not including any leg side-supports/bracing), a metal prop-shaft tunnel MUST be installed and securely fitted to the chassis/floor/gearbox for the purpose of preventing

the driver's clothing from catching on the prop-shaft. The tunnel MUST extend from the rear of the gearbox to behind or level-with the vertical plane from the transverse front edge of the driver's seat (behind the driver's knees, not including any leg side-supports/bracing), and MUST completely cover the prop-shaft. Modification, lightening, drilling or perforation of the tunnel (except for any required mounting-bolt holes) is NOT permitted. This requirement is in ADDITION to the prop-shaft hoop requirements above.

220 *Batteries & Electrical*

Battery

220.1 ***Any type of conventional lead-acid, gel-filled, or Absorbed Glass Mat (AGM) type battery may be used, in a single or dual configuration subject to the rules below.***

220.2 ***In a single battery configuration, the MAXIMUM permitted size of the battery is the "075" standard (dimensions: 245mm x 175mm x 175mm, OR, volumetric equivalent: 7,503 cu. cm).***

220.3 ***In a dual battery configuration, a MAXIMUM of 2 batteries may be used. The MAXIMUM permitted size of each battery in this configuration is the "063" standard (dimensions: 210mm x 175mm x 175mm, OR volumetric equivalent: 6,431 cu.cm.).***

220.4 All *acid-filled* batteries MUST be covered with a rubber or similar anti-corrosive material to prevent the spilling of battery acid.

220.5 ***The terminals of ALL battery types MUST be covered with a rubber or similar non-conductive material to prevent sparking/short circuiting.***

220.6 Batteries MUST be bolted to the chassis to prevent movement in an impact or roll-over.

220.7 Batteries must NOT be located where they may leak acid/fumes on to the driver safety harness.

220.8 Batteries must NOT be fitted between the driver's legs.

220.9 If fitted outside of the main chassis rails, batteries MUST be positioned next to the chassis rails with NO gap between the outside edge of the rail and the battery/batteries.

Master Isolator Switch

220.10 A battery isolator switch, in the earth circuit, MUST be fitted to the dashboard of the car at the base of the windscreen in an easily accessible position (from the outside). The On/Off positions of the switch MUST be clearly marked on the dashboard, and the location of the switch MUST be clearly marked on the outside of the car where it can be seen by track marshals.

Isolator Cut-Off Pull-Cord

220.11 ***A mechanical pull-cord, connected to the master electrical battery isolator switch MUST be installed.***

220.12 ***The pull-cord MUST be installed such that when pulled it switches OFF the master electrical isolator switch, and thus stops the engine and fuel-pump from running.***

220.13 ***The handle of the pull-cord MUST be…***

- ***Securely mounted to a seat support tube or other appropriate cross-member.***
- ***Mounted in the rear section of the driver's cab area, behind the driver's seat to the left of the driver.***
- ***Mounted so that it can be pulled rearwards by a marshal, away from the car, in a front to rear motion.***
- ***Mounted so that it can be easily pulled through the rear-window aperture in a single movement.***
- ***Mounted to a bracket of sufficient strength that will not deform or move under load.***
- ***Mounted at an angle of no more than 45° up from the horizontal.***

220.14 ***The pull-cord itself must be fitted in a smooth curve from the handle to the master isolator switch to prevent the cable from binding inside the sheath.***

220.15 ***The use of a secondary electrical cut-off switch in place of a mechanical pull-cord is NOT permitted.***

221 Radiators and Cooling System

221.1 A water-based liquid cooling system MUST be used.

221.2 The use of a water coolant additive is permitted, with the following exclusion:

221.2.1 **Venray (Netherlands) Only** – The use of a water coolant or any water additive is NOT permitted when racing at Raceway Venray. All cars MUST run plain water as the ONLY permitted method of cooling the engine.

221.3 Any radiator and associated pipes are permitted.

221.4 Any radiator MUST be fitted between the main chassis rails, AND forward of the firewall between the engine and driver compartments.

221.5 Cooling systems MUST utilise the original outlets from the engine.

221.6 Blocking off the heater hose outlets on the water pump and/or inlet manifold is permitted.

221.7 Use of the heater hose outlets on the water pump and/or inlet manifold with a secondary radiator is permitted.

221.8 ALL overflow pipes MUST point directly at the ground.

221.9 The use of electric cooling fans is permitted.

221.10 The use of mechanical cooling fans is permitted.

222 Fuel and Fuel System

222.1 Fuel System

222.1.1 Pressurized fuel systems are NOT permitted.

222.2 Fuel Tanks

222.2.1 The MAXIMUM permitted fuel tank capacity is 3 gallons (13.64 litres).

222.2.2 Fuel tanks MUST be constructed of steel with a MINUMUM 2mm wall thickness. Alloy tanks are NOT permitted.

222.2.3 The filler cap MUST be of a metal threaded screw type.

222.2.4 The fuel feed pipe MUST enter the fuel tank at or near the top.

222.2.5 The fuel tank MUST have a breather pipe to prevent spillage in case of inversion.

222.2.6 The fuel tank breather pipe MUST exit to air on the opposite side of the car to the exhaust system. If the breather pipe passes through the cab area it MUST conform to the fuel line material specifications below.

222.2.7 Where a car's fuel tank is fitted behind the driver's seat, and the exhaust system runs outside the main chassis rails, then the breather pipe MUST exit to air on the opposite side of the car's centre-line to the exhaust system . If the exhaust system runs under the cab area, and the fuel tank is mounted behind the driver's seat, then the breather pipe MUST exit to air outside of the main chassis rails/cab area on the opposite side of the car's centre-line to the exhaust system.

222.2.8 A one-way ***safety*** valve MUST be fitted in the fuel tank breather pipe to prevent fuel spillage, and MUST be in full working order. Modification of, or tampering with the one-way ***safety*** value is NOT permitted, and such actions, e.g. removal of the internal components, will result in disciplinary action.

222.2.9 The fuel tank MUST be securely fitted, preferably strapped down within a steel cage, rather than mounted on lugs that are prone to fatigue.

222.2.10 ***If fitted behind the driver's seat, a full firewall MUST be installed between the driver's compartment and the fuel tank.***

222.2.11 If fitted outside of the main chassis rails, the fuel tank MUST be positioned next to the chassis rail with NO gap between the outside edge of the rail and the inside edge of the tank. ***One edge of the fuel tank MUST be parallel to the main chassis rail when viewed from above.*** The outer edge of the tank may be a MAXIMUM distance of 9in (228mm) from the outside edge of the main chassis rail. The outside edge of the tank MUST be a MINUMUM distance of 10in (254mm) from the outside edge of the nerf rail(s).

222.2.12 ***If fitted outside of the main chassis rails,*** the fuel tank MUST be protected from intrusion by an additional single steel plate ***(MINIMUM 2mm in thickness) or steel tubes (MINIMUM specification of 25mm CHS/SHS x 2mm wall thickness).*** Any steel plate used may be a MAXIMUM of 6mm in thickness. ***(Note: The maximum material thickness will be reducing to 3mm in 2019, in line with general car construction/ballast rules.)***

222.3 Fuel Line

222.3.1 The fuel line and breather pipe MUST be constructed of metal pipe, or steel braided fuel hose.

222.3.2 The use of plastic pipes, and/or non-steel braided fuel hoses in the construction of fuel lines and/or breather pipe is NOT permitted.

222.3.3 A fuel shut-off tap MUST be fitted in the fuel line

222.3.4 The fuel shut-off tap MUST be either:

- Positioned within easy reach of the driver

OR

- Remotely operated by means of a steel cable with the handle positioned within easy reach of the driver

222.3.5 The fuel shut-off tap MUST be operable by the driver when strapped in their seat, and the driver MUST be able to demonstrate this when requested by an appointed official.

222.3.6 The location of the fuel shut-off tap MUST be clearly marked on the outside of the car where it can be seen by track marshals.

222.3.7 The use of a fuel pressure regulator is permitted.

222.3.8 Consideration should be given during car construction to the routing of the fuel line, keeping it away form hot exhausts, battery terminals, and other components likely to produce heat or a spark.

222.4 Fuel

222.4.1 **Type – UK Tracks** – All cars MUST use fuel that is freely available from at least 200 roadside service stations in the UK.

222.4.2 **Type – Mainland Europe Tracks** – All cars MUST use fuel that is freely available from roadside service stations in continental Europe.

222.4.3 **Additives – All tracks (unless specified below)** – The ONLY fuel additive permitted for use is Millers "CVL".

222.4.4 **Additives – Venray (Netherlands) Only** – The use of fuel additives is NOT permitted.

222.4.5 **Additives – All tracks** – The Millers "CVL Turbo" product is NOT permitted for use.

222.4.6 **Fuel Samples** – A MINIMUM of 0.5-litre (500ml) of fuel MUST remain in the car's fuel tank at all times (including at the end of a race), such that the car can be driven under its own power to any inspection/ weighing point, and so that a fuel sample may be taken.

222.5 *Fuel Supply*

222.5.1 ***Supply – UK Tracks – Any promotion or BriSCA F2 Technical Officer has the right to supply a car or cars, prior to the start of a race, with fuel that conforms to one of the following standards, and will supply an approved additive if required:***

- ***BS EN 228 : 2008 – Unleaded***
- ***BS 7800 : 2006 – Super Unleaded***

222.5.2 ***Supply – Mainland Europe Tracks – Any promotion has the right to supply a car or cars, prior to the start of a race, with fuel that conforms to the local standards and octane ratings available, and will supply an approved additive if required/permitted.***

222.5.3 ***Where BriSCA F2 or a promotion exercises the right to supply fuel to a driver for a race or meeting, then if required/requested to do so, the driver MUST pay a fee for the fuel to be used PRIOR to racing at the meeting or in the individual race, subject to the following:***

- ***Fuel fees are set to cover the cost of the fuel and any additive only, and will be reviewed on a regular basis.***
- ***The current fee, WITHOUT the CVL additive, is £20 for an entire normal format meeting, and £10 for a single race.***
- ***The current fee, WITH the CVL additive, is £30 for an entire normal format meeting, and £15 for a single race.***
- ***Where a driver suffers early race damage and is unable to compete in more than half his/her scheduled races at an event then an appropriate partial refund may be made at the conclusion of the meeting.***
- ***Any refusal to pay the fuel fee, or use the fuel provided, will be treated as a refusal of a technical check, resulting in an immediate suspension and a technical disciplinary process being invoked (a process that could lead to a racing ban).***
- ***Where a driver is required to pay for fuel under this process, then any fuel drained from the car's tank will be returned directly to the driver (a small sample may be taken). The driver is responsible for providing an appropriate container for the drained fuel.***

223 Exhaust/Silencer – All Engine Types (Pinto, Duratec, Zetec)

223.1 The exhaust system MUST be fitted outside the main/lower chassis rails and bodywork of the car, terminating on the same side as the exhaust ports of the engine.

223.2 It is NOT permitted for ANY part of the exhaust system to extend rewards beyond the rear face of the roll-cage. For simplicity, the rear face of the roll-cage is defined as the vertical plane from the point at which the rear roll-cage pillars (pillars 3 and 4) meet the top (main) chassis rails.

223.3 Where a car has a sufficiently high floor in the driver's compartment it is permitted to fit the exhaust system between the main chassis rails and run it under the cab floor, subject to the following conditions:

223.3.1 The exhaust MUST remain on the same side of the centre-line of the car as the engine exhaust ports for its entire length.

223.3.2 The exhaust must NOT cross the centre-line of the car at any time.

223.3.3 The exhaust MUST terminate on the same side of the centre-line of the car as the exhaust ports.

223.4 All cars MUST be fitted with the approved BriSCA F2 stainless-steel silencer. This approved silencer has the BriSCA F2 name/logo clearly etched in to it.

223.4.1 **Lelystad (Netherlands) Only** – All cars MUST be fitted with 2 approved BriSCA F2 silencers, OR, one approved large HGS silencer.

223.4.2 **Venray (Netherlands) Only** – All cars MUST meet a strict MAXIMUM 90dB noise limit at all times, measured according to local standards. The use of 2 approved BriSCA F2 silencers, OR, one approved large HGS silencer is permitted in order to conform to the stated noise limit.

223.5 The approved BriSCA F2 silencer must NOT be modified in any way.

223.6 Welding is NOT permitted on the silencer unit within 25mm of the silencer box.

223.7 ***The exhaust system MUST be designed and constructed as a "4 in to 1" system, where the 4 individual header pipes merge in to a single main pipe through a single collector.***

223.7.1 ***The use of multi-collectors is NOT permitted.***

223.7.2 ***The use of a "4 in to 2 in to 1" design is NOT permitted.***

223.8 ***All sections of the exhaust system, from the exhaust ports to the collector, and from the collector to the mandated BriSCA F2 silencer, MUST be constructed from tube with a constant, non-varying, internal and external diameter.***

223.9 ***The collector MUST be constructed for the sole purpose of merging the four exhaust header*** pipes in to one ***main pipe***, and MUST NOT incorporate any other performance altering ***features.***

223.10 The single main pipe linking the collector to the mandated standard BriSCA F2 silencer MUST be straight along its entire length. Bends in this pipe are NOT permitted.

223.11 Additional exhaust attachments, tail pipes, and performance altering devices are NOT permitted.

223.12 The use of heat wrap on any part of the exhaust system is NOT permitted.

223.13 An exhaust silencer may be failed by a scrutineer or other appointed BriSCA F2 technical official due to one or more of the following factors:

- The absence of the official BriSCA F2 name/logo.
- The engine sound, when in use, compared to other cars.
- A significant difference in volume compared to other cars.
- A distinct ringing or other unusual sound of the silencer casing (indicating an absence of internal wadding/baffling).
- The observation/suspicion of any modification(s) or tampering.

224 Exhaust/Silencer – 2.0-litre Zetec Engines Only

224.1 The exhaust system MUST be manufactured from mild steel tubing, or 304 stainless steel tubing.

224.2 The use of paint to provide a protective coating is permitted.

224.3 The use of ANY coating, other than paint as detailed above, is NOT permitted.

224.4 The entire exhaust system MUST exit the engine and return along the car on the same side of the centreline as it exits the cylinder head.

224.5 Manufactured Exhaust Manifold/Systems

224.5.1 The BriSCA F2 preferred provider for manufactured exhaust systems is Simpson Exhausts – Tel: 01753 532222, Web: www.simpsonraceexhausts.com

224.5.2 Each of the four primary pipes must NOT exceed a MAXIMUM length of 790mm. This measurement is taken from the face of the cylinder head flange to the termination of the pipe, and is measured along the centreline of the pipe and through the centreline of any bends.

224.5.3 The external diameter of the four primary pipes must NOT exceed a MAXIMUM of 45mm.

224.5.4 The four primary pipes MUST maintain a constant, non-varying, internal and external diameter along their entire length, with the exception of up to a MAXIMUM of 50mm from the join to the cylinder head mounting flange.

224.5.5 The collector must NOT exceed a MAXIMUM length of 150mm. This measurement is taken from the swaged primary end to the point where the single straight main pipe starts. This rule is illustrated in Technical Diagram 14.

224.5.6 The external diameter of the single straight main pipe, linking the collector to the mandated standard BriSCA F2 silencer, must NOT exceed a MAXIMUM of 57mm.

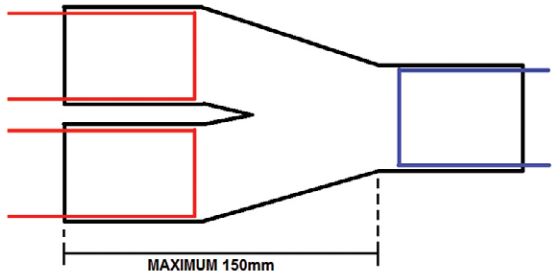

DIAGRAM 14

224.5.7 The purchase value of the complete exhaust system (excluding the standard BriSCA F2 silencer) must NOT exceed a MAXIMUM of £390 (inclusive of VAT), and this MUST be freely available to ALL drivers.

224.5.8 The re-flanging and/or modification of existing Pinto and Duratec based systems is permitted, but any such system MUST comply fully with the above specifications.

224.6 Standard Production Exhaust Manifold/Systems

224.6.1 The standard tubular Ford Focus manifold, as fitted to the permitted 2.0-litre Zetec engine types detailed below, is permitted.

224.6.2 The standard Ford Focus manifold must NOT be modified internally or externally in any way.

224.6.3 Mounting the connecting down-pipe under the top (main) chassis rail is permitted.

224.6.4 The rear-most end of the mandated standard BriSCA F2 silencer must NOT pass beyond the vertical plane taken from the rear face of the rear axle half-shaft tubes.

224.6.5 A MAXIMUM of TWO bends are permitted on the single pipe only to allow the system to return to the rear of the car.

224.6.6 A system based on the standard manifold MUST conform to all specifications, including but not limited to lengths, diameters, and costs, as detailed for manufactured systems.

Notes for 2019:

- ***From 1st January 2019, a common set of exhaust rules will apply to ALL engine types.***
- ***These rules will be based on the existing Zetec engine exhaust rules for pipe lengths and diameters.***

225 Fire Extinguishers

225.1 It is **recommended** that all cars carry a hand-held fire extinguisher, or have a plumbed-in fire suppressant system installed.

225.2 Fire extinguishers should be 1Kg (2.2lbs) in size, include a gauge, and contain either dry powder or CO_2 gas. BCF extinguishers (old-style green) are NOT permitted.

225.3 The fire extinguisher or activation knob MUST be within easy reach of the driver when strapped in the seat, and mounted below shoulder height.

225.4 It is advised that hand-held fire extinguishers are mounted within a vertical steel tube, with a spring retainer catch to hold it in.

225.5 Details of the transporter vehicle fire extinguisher requirements can be found in the ORCi Safety Specification rules detailed separately in the rulebook.

226 Aerofoils/Wings

226.1 General

226.1.1 The use of either a top-mounted aerofoil or a rear-mounted Superstox-type wing, on or over the cab, is optional. Only one such device may be used at any one time.

226.1.2 The use of any aerofoil or wing on the front, or any other part of the car is NOT permitted.

226.1.3 Any aerofoil/wing MUST be mounted centrally on the car when viewed from the front/rear.

226.1.4 Any aerofoil/wing MUST consist of a single-deck/single-layer centre-section ONLY.

226.1.5 The use of multi-deck aerofoils/wings is NOT permitted.

226.1.6 The joining together of multiple level decks is NOT permitted.

226.1.7 A MAXIMUM of 2 side-plates are permitted in any aerofoil/wing construction/design: one on the left side/end, and one on the right side/end.

226.1.8 The use of non-rectangular side-plates is permitted.

226.2 Top-Mounted Aerofoils

226.2.1 A traditional multi-section design aerofoil is made up of a main body centre-section, with two attached side-plates.

226.2.2 A single-panel design aerofoil is made up of a single sheet of metal, formed in to a stretched-out “N” shape, mounted to a supporting frame, and commonly (though not exclusively) used on shale tracks.

226.2.3 Measurements for the higher side-plate in a single-panel design are taken from the top most point (including any curve of the end of the plate) to the point at which the vertical side-plate plane intersects with the (usually angled) centre-section plane.

226.2.4 Measurements for the lower side-plate in a single-panel design are taken from the bottom most point (including any curve of the end of the plate plate) to the point at which the vertical side-plate plane intersects with the (usually angled) centre-section plane.

226.2.5 Measurements for a centre section in a single-panel design are taken from the point at which the (usually angled) centre-section plane intersects with the two vertical side-plate planes.

226.2.6 Side-plates MUST have 4 sides.

226.2.7 The MAXIMUM permitted centre-section size for a top-mounted aerofoil is 44in x 44in (1117mm x 1117mm).

226.2.8 The two opposing long sides of each side-plate must be NO longer than a MAXIMUM of 48-inches (1219mm) each in length.

226.2.9 The two opposing long sides of each side-plate must run from front to rear (they need not be parallel to the ground).

226.2.10 The two opposing short sides of each side-plate must be NO longer than a MAXIMUM of 24-inches (610mm) each in length.

226.2.11 The two opposing short sides of each side-plate must run top to bottom (they need not be vertical).

226.2.12 The length of the diagonal measurements (between opposing corners) of each side-plate must be NO longer than a MAXIMUM of 62in (1575mm).

226.2.13 In a single-panel design, the distance from the top of the higher side-plate to the bottom of the lower side-plate, following the profile of the aerofoil, must be NO longer than a MAXIMUM of 92in (2337mm) – (The equivalent of 2 side-plates at 24in each, plus a centre section at 44in).

226.2.14 ANY aerofoil (including but not limited to its body, side-plates and mounting brackets) is NOT permitted to extend rearwards beyond the vertical plane of the rearmost face of the rear bumper.

226.2.15 Any aerofoil (including but not limited to its body and side-plates) mounted on/above the cab MUST be mounted with at least a MINIMUM clearance of 1in (25mm) ABOVE the roofline at all points.

226.2.16 In practice, any aerofoil MUST be mounted high enough above the roof of the car such that a tube/pole/bar, 1in (25mm) diameter/square in size, in a horizontal orientation is able to pass below both the side plates and the body, and above the roll cage roof plate along the entire length of any overlap between the aerofoil and the cab roof. This rule is illustrated in Technical Diagram 15.

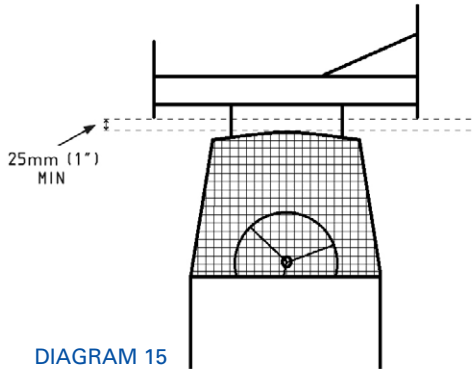

DIAGRAM 15

226.3 Rear-Mounted Superstox-type Wings

226.3.1 The MAXIMUM permitted body-size for a rear-mounted Superstox-type wing is 48in x 18in (1219mm x 457mm) (transverse width x longitudinal length).

226.3.2 The MAXIMUM permitted side plate size for a rear-mounted Superstox-type wing is 26in x 12in (660mm x 305mm) (length x height).

226.3.3 Any rear-mounted Superstox-type wing (including but not limited to its body, side-plates and mounting brackets) is permitted to extend up to a MAXIMUM of 300mm behind the vertical plane of the rearmost face of the rear bumper.

226.3.4 Any rear-mounted Superstox-type wing (including but not limited to its body, side-plates and mounts) must NOT overlap with the driver's entry/exit window on either side of the car at any point. This is the area described by the front and middle roll-cage pillars, side bar, and longitudinal roof bar. Any panel-work that may cover these structural components is discounted for the purpose of this check.

226.3.5 In practice, any rear-mounted Superstox-type wing MUST be mounted such that a tube/pole/bar, 1in (25mm) diameter/square in size, and in a transverse horizontal orientation, can pass through the driver's entry/exit window on both sides of the car AND butt up to all points of the front and middle roll-cage pillars, side bars, and longitudinal roof bars without contacting any part of the wing. Panel-work covering these structural components is discounted for the purpose of this check.

226.3.6 If ANY part of a rear-mounted Superstox-type wing (including but not limited to its body and side-plates) is located forward of the front edge of the middle roll-cage pillar then the ENTIRE wing (including but not limited to its body and side-plates) MUST be mounted with at least a MINIMUM clearance of 1in (25mm) ABOVE the roofline at all points. In practice, in such cases the wing MUST be mounted high enough above the roof of the car such that a tube/pole/bar, 1in (25mm) diameter/square in size, in a horizontal orientation is able to pass below both the side plates and body, and above the roll cage roof plate along the entire length of any overlap between the wing and the cab roof.

227 Transponders

227.1 All cars MUST be fitted with a working transponder for electronic lap-scoring.

227.2 The permitted transponders are:

- MyLaps/AMB – Tran-X 260 DP (Direct-Powered)
- MyLaps/AMB – Tran-X 260 (Rechargeable)
- ***MyLaps/AMB – Tran-X 160 DP (Direct-Powered)***
- MyLaps/AMB – Tran-X 160 (Rechargeable)
- MyLaps – X2 Car Transponder (Rechargeable)
- MyLaps – X2 Car Transponder (Direct-Powered)

Note: The subscription for the latest X2 range of transponders MUST be activated, and the transponder enabled before it can be used on track.

227.3 The transponder MUST be securely fitted, and working, at all times when the car is on the track or being scrutineered. Care should be taken with rechargeable units to ensure they are securely fitted to the car and will not come loose in an impact; it is recommended that such units are bolted to the car, and backed-up with additional cable-ties, rather than using the original plastic mount with an R-clip.

227.4 The transponder MUST be securely mounted a MINIMUM of 1800mm (1.8m) back from the front bumper, and approximately 450mm from the ground. Care should be taken to ensure a clear line of signal from the transponder to the ground.

227.5 Transponders may be sold/transferred at any time; however, the driver MUST inform the Licencing Officer and complete a Transfer Form.

227.6 Results will NOT be credited to a driver if their transponder fails to operate from the start of the meeting.

227.7 Transponders are available from MYLAPS Sports Timing (www.mylaps.com) and HS Sports (www.hssports.co.uk).

228 Driver/Car Identification

228.1 The driver's assigned racing number (as indicated on their licence) MUST be displayed on both sides of the car, the rear of the car, and on both sides of any roof fin or aerofoil/wing.

228.2 The driver's number MUST be black on a white background, in strokes of 1in (25mm) MINIMUM, to a MINIMUM height of 9in (228mm).

228.3 The driver's name MUST be displayed in letters at least 3in (76mm) tall on the off-side (right) of the aerofoil (or car body-panels if no aerofoil is fitted) where it can be CLEARLY seen by the spectators.

228.4 Sponsor names and logos may appear on the car, but they must NOT interfere with the numbering or driver's name.

229 Grading Colours/Roof Painting/Lights

229.1 The following official championship winning roof/roll-cage colours apply:

- World Champion — Gold
- National ***Series*** Champion — Silver
- British Champion — Black/White chequered
- European Champion — Red/Yellow chequered
- World of Shale Champion — Two Gold stripes, 100mm wide
- World Cup Winner — One Gold stripe, 100mm wide
- ***Gala*** Champion — Orange/White chequered
- Scottish Champion — St. Andrew's Cross/Saltire (Blue with a white diagonal cross)
- English Open Champion — St. George's Cross (White with a red centred cross)

229.2 The following official grading roof/roll-cage colours apply:

- Superstar/Star grades — "Mail-box" Red
- 'A' grade — Light Blue
- 'B' grade — Yellow
- 'C' grade — White
- Novice — White, with a 75mm wide Black Cross on the rear of the car

229.3 The whole of a top mounted aerofoil, if fitted, MUST be painted/coloured in the driver's official grading/championship winning colour with the exception of the driver's race number which MUST be black on white (see Car Identification rules above).

229.4 The whole of a top/rear mounted "Superstox-type" wing, if fitted, MUST be painted/coloured in the driver's official grading/championship winning colour with the exception of the driver's race number which MUST be black on white (see Car Identification rules above).

229.5 The whole of the top surface of the roof plate on all cars MUST be painted/coloured in the driver's official grading/championship winning colour (even if the remainder of the roll-cage above the waistline is a neutral colour). A MAXIMUM gap of 1in (25mm) will be permitted between the required grading colour section and a vertical straight-edge butted up against the outside edges of the roof/roll-cage.

229.6 The roll-cage, and "ear" panels (from the waistline up) of all cars MUST be painted/coloured in:

- The driver's official grading/championship colour

OR

- A neutral colour (i.e. NOT one of the grading colours listed above)

229.7 ***The use of ANY shade of grey, silver, or gold for the roll-cage and/or "ear" panels above the waistline of the car is NOT permitted, other than by the respective champion as detailed above.***

229.8 Superstar graded drivers MUST fit at least one flashing amber roof light in working order, with sufficient power to be clearly visible by the crowd. The flashing light(s) MUST be switched on and operational during racing.

229.9 External lights, flashing or otherwise (with the exception of Superstar graded lights), are NOT permitted.

229.10 ***Any driver appearing with the wrong roof colour, or without the required flashing superstar lights, will be penalised in accordance with the Technical Infringement Penalties section of the rulebook until the issue is rectified to the satisfaction of the Steward/Scrutineer/Clerk-of-the-Course.***

230 Engines – General Rules For ALL Engines

Permitted Engines

230.1 The following engines are permitted for use ***by ALL drivers***, subject to the individual specifications below:

230.1.1 The **Ford 2.0-litre SOHC NE** type engine (commonly referred to as the 2.0-litre Pinto). This engine has a nominal bore of 90.84mm and a stroke of 76.95mm.

230.1.2 The **Ford 2.0-litre 16v Zetec** engine (UK/European specification) in its 136PS form (commonly known as the "black-top" engine). This engine has a nominal bore of 84.80mm and a stroke of 88.00mm.

230.2 ***The following engine is permitted for use ONLY by drivers who have used it regularly prior to the 2018 season. The list of authorised drivers will be maintained by BriSCA F2. Any driver not already using this engine variant is NOT permitted to commence its use.***

230.2.1 The **Ford 1.8-litre Duratec** engine (Engine Type 1.8L (MI4)). This engine has a nominal bore of 83mm and a stroke of 83.10mm.

Engine Mounting

230.3 The engine MUST be mounted longitudinally in the chassis.

230.4 The engine MUST be mounted in an upright position, as fitted to the vehicle of origin.

230.5 The engine MUST be mounted centrally between the main chassis rails such that the rotational centre-line of the crankshaft sits along the centre-line of the car***, subject to the tolerance stated below***.

230.6 ***The MAXIMUM permitted tolerance from the rotational centre of the crankshaft to the centre-line of the car is 25mm.***

230.6.1 ***The transverse position of the centre-line of the chassis is taken as the perpendicular plane to a transverse straight-edge placed across the main chassis rails, at the mid-point between those two chassis rails (Plane A in*** Technical Diagram 16***).***

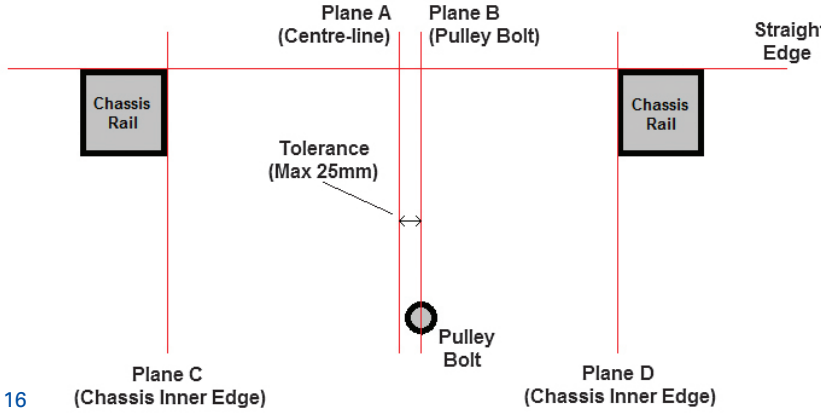

DIAGRAM 16

230.6.2 ***The transverse position of the crankshaft front-pulley securing bolt is taken as the perpendicular plane to a transverse straight-edge placed across the main chassis rails, when the plane passes through the rotational centre of the bolt (Plane B in*** Technical Diagram 16***).***

230.6.3 ***Method 1 – The central fitment measurement is taken as the perpendicular distance between the two planes described above (the measurement between Plane A and Plane B in*** Technical Diagram 16***).***

230.6.4 ***Method 1 – A tolerance of a MAXIMUM of 25mm is permitted for the distance between the two planes described above. [If the engine is exactly central then it will measure 0mm.]***

230.6.5 ***Method 2 – Alternatively, the difference between the two distances from the pulley bolt plane (Plane B in*** Technical Diagram 16***) to the perpendicular planes at the inner edges of the main chassis rails (Planes C and D in*** Technical Diagram 16***) must be no larger than a MAXIMUM tolerance of 50mm. [Halving this figure will give the same central fitment measurement from the centre-line, as described in Method 1.]***

230.6.6 ***The perpendicular planes can be determined by the use of straight edges and squares with the chassis in any orientation. Alternatively a plumb-line, spirit-level and tape/rule can be used, however, such tools require the chassis to be exactly level and parallel to the ground.***

General Engine Requirements

230.7 ***Unless otherwise stated, ALL engine parts and components MUST conform to the original UK specification of the permitted engine type in use.***

230.8 ***The use of sports or competition specification parts/components is NOT permitted unless explicitly stated.***

230.9 An oil catch tank with a MINIMUM capacity of at least 1-litre MUST be fitted to the car and connected to the engine's breather system.

230.10 Turbocharging and/or supercharging is NOT permitted.

230.11 Fuel injection is NOT permitted.

230.12 Electronic advance/retard and flywheel/crankshaft pickup systems are NOT permitted, ***unless as a mandatory requirement detailed below – e.g. the required Zetec ECU.***

230.13 The use of performance ignition systems, including, but not limited to, MSD multi-spark and digital ignition control systems is NOT permitted.

230.14 Telemetry devices that are used to record engine data to enhance performance are NOT permitted.

230.15 BriSCA F2 reserves the right to mandate the use of a control restrictor plate***, rev. limiter, ECU, or any alternative method of managing performance,*** on any of the permitted engine types, should it be deemed necessary in order to maintain ***competitive parity between them.***

230.16 ***The use of a single, standard original specification alternator is permitted.***

230.16.1 ***The alternator MUST be driven from the front of the engine, as per the original road-going vehicles to which the engine type was fitted.***

230.17 Engine Checking Procedures

230.17.1 The scrutineering of engines will be very strict, and on a totally random basis, as the rules are designed to maintain parity of performance.

230.17.2 The engine MUST be made available at any track for scrutineering.

230.17.3 Compensation for gaskets and oil will be made, providing the engine is legal (excepting checks for the top three in the World Final).

230.17.4 Any driver whose engine is sealed or protested MUST arrange with ***BriSCA F2*** to have the engine dismantled and checked within 21 days of it being sealed.

230.17.5 It is the responsibility of the driver to produce his engine for inspection at a convenient place for the involved parties.

230.17.6 The following people MUST be in attendance at the inspection:

- BriSCA F2 appointed Engine Scrutineer
- The Driver's Engineer
- Two witnesses (preferably registered drivers)

230.17.7 Engines that are required to be stripped for Championship events will be stripped on the day of the event, at the track. A MAXIMUM of 3 people ***from the driver's team (including the driver)*** may attend the engine inspection.

230.17.8 ***It is the responsibility of the driver's team to strip the engine for a championship event, under the direction of the official(s) present. If time constraints require, then an appointed official may assist in the engine stripping process.***

231 Engines – Ford 2.0-litre SOHC NE (Pinto) Specification

231.1 Permitted Engine – The Ford 2.0-litre SOHC NE type engine (commonly referred to as the 2.0-litre Pinto) is permitted. This engine has a nominal bore of 90.84mm and a stroke of 76.95mm.

231.2 General Rules

231.2.1 Unless otherwise stated, ALL parts appertaining to the engine MUST be standard Ford 2.0-litre SOHC items, as fitted to the original engine type. Production tolerances are permitted.

231.2.2 The removal or addition of ANY material from or to the combustion chamber and/or ports is NOT permitted unless specified below.

231.2.3 Painting of the engine, inside and outside is permitted, except in the combustion chambers and ports.

231.2.4 Internal painting must NOT change the surface from matt to smooth.

231.3 Engine Block

231.3.1 Over-boring the engine block up to a MAXIMUM of 1.5mm (0.060in) is permitted.

231.3.2 Sleeving the cylinder back to 90.84mm and re-boring up to a MAXIMUM of 1.5mm (0.060in) oversize is permitted.

231.3.3 Line boring of the main bearing housings is permitted.

231.3.4 Surfacing the block deck is permitted, but pistons must NOT protrude above the face of the block at TDC.

231.3.5 Securing the oil seals and/or core plugs through the use of grub screws or similar is permitted.

231.4 Crankshaft

231.4.1 A standard crankshaft MUST be used.

231.4.2 The crankshaft MUST weigh at least a MINIMUM of 28lbs (12.7Kg).

231.4.3 Spot machining to achieve crankshaft balance is permitted.

231.4.4 Tuftriding, shot peening and shot blasting of the crankshaft is permitted.

231.4.5 Polishing the crankshaft is NOT permitted.
231.4.6 Altering the number of bearings is NOT permitted.
231.4.7 Altering the bearing width is NOT permitted.
231.4.8 The use of narrower bearings of less than MINIMUM standard width is NOT permitted.
231.4.9 The use of oversize and/or undersize bearings of standard or heavy-duty material is permitted, but these MUST be within the standard range available for engine reconditioning.
231.4.10 The relieving of oil-way holes on each crank journal is permitted. The modification of all other oil-ways is NOT permitted.
231.4.11 Cross-drilling of crankshafts is NOT permitted.
231.4.12 The original unmodified standard camshaft toothed-belt drive pulley, separating washer, and water pump "V-belt" drive pulley, all mounted to the crankshaft, are all permitted.
231.4.13 Replacement of the standard water pump "V-belt" drive pulley mounted to the crankshaft with a machined/manufactured water pump "V-belt" drive pulley is permitted. Any replacement pulley must NOT incorporate the separating washer (which MUST be separately retained).
231.4.14 The circumference of any replacement water pump "V-belt" drive pulley mounted to the crankshaft MUST measure at least a MINIMUM of 363mm. This equates to a MINIMUM diameter of at least 115.55mm.
231.4.15 The weight of any replacement water pump "V-belt" drive pulley mounted to the crankshaft MUST measure at least a MINIMUM of 600g.
231.4.16 Removal of the separating washer between the camshaft toothed-belt drive pulley and water pump "V-belt" drive pulley mounted on the crankshaft, is NOT permitted.
231.4.17 Replacement of the original camshaft toothed-belt drive pulley, mounted on the crankshaft, with a machined/manufactured part is NOT permitted.

231.5 Con Rods

231.5.1 Spot machining to achieve con rod balance is permitted using the pad on the big-end cap ONLY.
231.5.2 Removal of the bob-weight on the small-end is permitted.
231.5.3 The areas where fettling is permitted are illustrated in Technical Diagram 17.

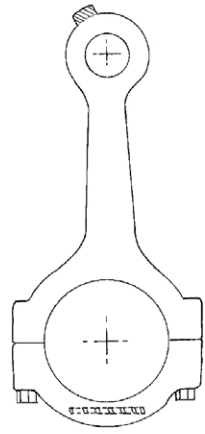

DIAGRAM 17 Area where fettling is permitted

231.5.4 Tuftriding, shot peening and shot blasting of the con rods is permitted.
231.5.5 Polishing the con rods is NOT permitted.
231.5.6 The fitting of high-tensile bolts is permitted.
231.5.7 The use of steel con rods is NOT permitted.

231.6 Pistons

231.6.1 Pistons MUST be of Ford production type.
231.6.2 Powermax pistons are NOT permitted.
231.6.3 Forged pistons are NOT permitted.
231.6.4 Pistons must NOT be modified in any way, except for balancing or cylinder block resurfacing as detailed below.
231.6.5 To achieve balance, the removal of material from any inner surface location is permitted. The removal of material from other locations is NOT permitted.
231.6.6 The machining of piston crowns to allow the resurfacing of cylinder blocks is permitted.
231.6.7 Piston rings MUST be of standard type.
231.6.8 All three piston rings MUST be fitted on each piston.
231.6.9 At least one piston MUST retain its original manufacturer's markings.

231.7 Cylinder Head

231.7.1 Surfacing of the cylinder head face is permitted.
231.7.2 Ports and chambers MUST be as originally cast by Ford during the manufacturing process, unless stated below.
231.7.3 The first 19mm from the manifold face of the cylinder head in to the inlet and exhaust ports MUST remain as originally cast; fettling is NOT permitted in these areas. This is illustrated in Technical Diagram 18. Fettling of inlet and exhaust ports is only permitted in the area between the valve seat and valve guide, as illustrated in Technical Diagrams 18 and 19.
231.7.4 Three-angle valve seats are permitted.

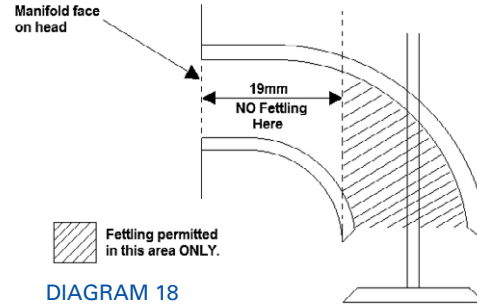

DIAGRAM 18

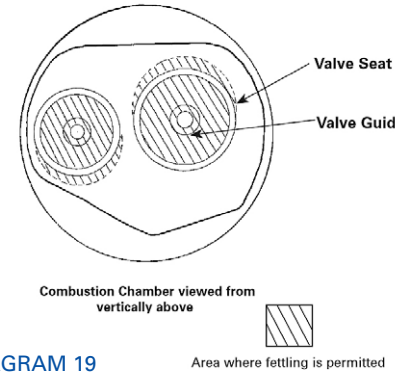

DIAGRAM 19

231.7.5 Valve seat inserts used to repair damaged heads are permitted. These MUST occupy the EXACT position of the original seat.

231.7.6 The addition of metal or any other material to ports and/or chambers is NOT permitted.

231.7.7 The strapping of up to a MAXIMUM of 2 out of the 3 camshaft centre main bearing caps is permitted. A MINIMUM of 1 of the camshaft centre main bearing caps MUST remain as standard.

231.7.8 The use of a MAXIMUM of 2 threaded inserts, for the sole purpose of repairing broken cylinder head castings for ***follower***-post ball-studs, is permitted.

231.7.9 The angle of ***follower***-post ball-studs, relative to the cylinder head, and/or their location, must NOT be altered in any way.

231.7.10 ***Original Ford pattern cylinder-head bolts (early 12-point spline non-stretch type, or late 6-point Torx stretch type) MUST be used (subject to the rules below). Alternative non-original Ford pattern cylinder head bolts (e.g. socket-cap bolts) are NOT permitted.***

231.7.11 ***The shortening of standard cylinder head bolts, use of a spacer washer, or deepening of the threaded hole in the block, in order to achieve the correct cylinder head tightness when surfacing the head/block face is permitted.***

231.7.12 ***The use of 2 studs to replace the two centre cylinder-head bolts to facilitate the use of a bolt-on strap over the camshaft centre-post is permitted. The studs MUST be of equal or lower tensile strength than the original Ford cylinder-head bolts. The other 8 cylinder-head bolts MUST be standard (as detailed above).***

231.8 Cylinder Head Valves

231.8.1 Valves MUST be of a standard type with head diameters of 42mm +/-0.2mm for the inlet, and 36mm +/-0.2mm for the exhaust.

231.8.2 The lightening of valves is NOT permitted.

231.8.3 The replacement of valve guides is permitted, but replacements MUST occupy the original positions.

231.8.4 ***The bottom of the valve guide may be trimmed in the area where port fettling is permitted.***

231.8.5 Only eight valve springs per engine are permitted.

231.8.6 ***The use of competition valve springs is permitted.***

231.8.7 The machining of valve spring seats is permitted

231.8.8 The use of shims to achieve correct fitted length is permitted.

231.8.9 Steel valve spring caps are permitted.

231.9 Camshaft and Followers

231.9.1 The camshaft profile is free, but the machining of other engine parts to allow its fitment is NOT permitted.

231.9.2 Slipper type camshaft followers matching the original standard Ford pattern, made of steel or iron ***and*** including those with hardened inserts, are permitted from any manufacturer.

231.9.3 Roller and/or alloy camshaft followers are NOT permitted.

231.9.4 The modification of camshaft followers to remove material form

the standard component for lightening or any other purpose is NOT permitted.

231.9.5 ***Standard camshaft follower retaining springs MUST be used. The use of heavy-duty camshaft follower retaining springs is NOT permitted.***

231.9.6 Standard camshaft bearings MUST be used.

231.9.7 Centre drilling of standard camshaft bearings to improve lubrication is permitted.

231.9.8 Replacement ball-studs are permitted, but replacements MUST be made of ferrous material and remain as standard construction, 1.81in in length.

231.9.9 As a means of repair, up to a MAXIMUM of 3 ball-studs (of the original 8) per engine are permitted to be longer than the standard 1.81in in length.

231.9.10 A standard 2.0-litre Ford SOHC NE camshaft belt MUST be used.

231.9.11 The camshaft cover is free, but it must NOT incorporate any water passages.

231.9.12 The use of a vernier timing wheel is permitted.

231.9.13 As a means of repairing camshaft thrust groove wear, the machining away and replacement of the worn groove section is permitted. The use of a single centre bolt as a fixing is permitted.

231.10 Gaskets and Seals

231.10.1 Any standard non-competition head gasket is permitted.

231.10.2 Carburettor and inlet manifold gaskets MUST be of the original type.

231.10.3 All other gaskets not specified above/below are free.

231.11 Carburettor

231.11.1 The standard Weber 32/36 DGV or Weber 32/36 DGAV carburettor MUST be used.

231.11.2 The MAXIMUM permitted size of the chokes is 26mm diameter for the smaller, and 27mm diameter for the larger.

231.11.3 Polishing and/or re-profiling is NOT permitted.

231.11.4 Modifications to the carburettor body and/or original design are NOT permitted.

231.11.5 The interchanging of tops from other Weber carburettor models is NOT permitted.

231.11.6 All gaskets MUST remain standard and original in design and manufacture.

231.11.7 A single original specification insulator block with two gaskets MUST be fitted between the carburettor and the inlet manifold (the combined total thickness is approximately 5mm depending on the compression of the gaskets). ***The insulator block and gaskets MUST be of the "single unequal oval hole" design. Use of the rare "twin-hole" RS Mexico insulator block is NOT permitted.***

231.11.8 Changing the main jets, primary and secondary jets, auxiliary venturis, emulsion tubes, and/or accelerator pump jets for alternative standard parts is permitted

231.11.9 The auxiliary venturis MUST face downwards towards the butterflies.
231.11.10 ***Reaming/enlarging the auxiliary venturis is NOT permitted.***
231.11.11 The modification of chokes to open together is permitted. The fitting of replacement spindles with standard screws is permitted.
231.11.12 The removal of cold-starting devices is permitted. Blanking off the retaining lugs and subsequent holes is also permitted.
231.11.13 Enlarging and/or modifying the air and fuel galleries is NOT permitted. Fuel may enter on either side of the float chamber.
231.11.14 The modification and/or weighting of floats is NOT permitted. The floats MUST control the fuel flow.
231.11.15 The enlargement and/or modification of needle valves is NOT permitted.
231.11.16 Needle valves MUST be no larger than a MAXIMUM of size "250"***, subject to manufacturing tolerances.***
231.11.17 The power valve MUST be present and fitted in the base of the fuel bowl. Sealing off the power valve and/or removing the diaphragm is permitted.
231.11.18 Trumpets are NOT permitted.
231.11.19 The use of a grub-screw or similar device to secure the auxiliary venturis to the carburettor body is permitted.
231.11.20 The blanking off and/or modification of top end enrichment devices is permitted.
231.11.21 A secondary fixing MUST be used on the fuel feed inlet pipe connection to the carburettor. The secondary fixing MUST be completely independent of the primary fixing for the fuel feed inlet pipe, and is designed to prevent the inlet tube (with the fuel pipe still attached to it) from parting company with the carburettor body.

231.12 Inlet Manifold

231.12.1 The inlet manifold MUST remain standard.
231.12.2 The inlet manifold must NOT be faced to alter the angle of the manifold to carburettor.
231.12.3 The gas flow area MUST remain as standard. Material must NOT be added to or removed from the gas flow area.
231.12.4 Inlet port matching of the carburettor to the manifold, and/or the manifold to the head is NOT permitted.
231.12.5 The fitment of a steel support to stabilise the inlet manifold is permitted, but any fastening must NOT penetrate the manifold runner or plenum.
231.12.6 Machining of the inlet manifold is NOT permitted.
231.12.7 Welded repairs to cracked manifolds are permitted, but subsequent internal finishing MUST be consistent with the original and NOT be deemed to have affected manifold performance.

231.13 Exhaust Manifold

231.13.1 The exhaust manifold and system are free, subject to the separately documented Exhaust/Silencer rules.
231.13.2 A silencer MUST be fitted (refer to separately documented Exhaust/Silencer rules).

231.14 Lubrication

Sumps

231.14.1 ***The only permitted sumps are as follows:***

- ***The original steel sump, as fitted to the original engine type. Optional baffling is permitted. Modification/enlargement to increase oil capacity is permitted.***
- ***The RS2000 alloy sump in standard form only. NO modification is permitted.***

231.14.2 Dry sumps are NOT permitted.

Oil Pickup

231.14.3 The modification of oil pickup pipes is permitted.

231.14.4 Oil pickup pipes MUST terminate in the sump.

Filters

231.14.5 Remote oil filters are NOT permitted.

231.14.6 Compact oil filters are permitted.

231.14.7 The use of a sandwich plate for ***the*** fitment of an ***oil-cooler*** is permitted.

Oil Galleries

231.14.8 All oil galleries MUST be unmodified.

231.14.9 The relieving of oil-way holes is NOT permitted, with the exception of the crank journals (see crankshaft rules).

231.15 Flywheel And Clutch

231.15.1 The flywheel and clutch MUST be standard 2.0-litre components.

231.15.2 The total weight of the complete flywheel assembly, including clutch, cover, driven plate***, ring-gear*** and all mounting bolts MUST be at least a MINIMUM of 12.31Kg.

231.15.3 The total weight of a bare flywheel ***(which includes the attached ring-gear)*** MUST be at least a MINIMUM of 6.2Kg.

231.15.4 Machining down of the flywheel to the MINIMUM weight (for both the bare flywheel and the complete assembly) is permitted.

231.15.5 1600cc clutch components are NOT permitted.

231.15.6 Steel flywheels manufactured by Redline, SRD and Baines have been approved, subject to the above rules.

231.16 Distributor, Coil & Ignition

General

231.16.1 A conventional single coil and distributor MUST be used.

Coil

231.16.2 A genuine Ford ignition coil as fitted to the permitted 2.0-litre SOHC NE (Pinto) engine type detailed above, or a direct aftermarket replacement ignition coil with a part number cross-referencing directly to the original Ford 2.0-litre SOHC NE (Pinto) item, MUST be used.

231.16.3 The use of any non-standard or performance enhancing ignition coil is NOT permitted (e.g. MSD Ignition Blaster, Crane Cams PS91, Crane Cams FireBall range, ***or the CI BlueTronic***).

231.16.4 The use of any ignition coil that does not cross-reference directly to

the original Ford 2.0-litre SOHC NE (Pinto) item is NOT permitted (e.g. a coil that cross-references only to a Vauxhall, Peugeot, or any other make).

231.16.5 A standard aftermarket replacement solid-state coil may be used ONLY IF it directly cross-references to the original Ford 2.0-litre SOHC NE (Pinto) item, is freely available over the counter from high-street or trade motor factors, and does NOT introduce any performance enhancements above and beyond the original Ford design.

231.16.6 The part number of ANY fitted cross-referenced aftermarket replacement coil MUST be clearly visible to the scrutineer or other appointed BriSCA F2 official.

Distributor

231.16.7 The standard Motorcraft or Bosch distributor MUST be used.

231.16.8 Modifications to remove vacuum-advance parts, fit competition parts, and/or fit electronic ignition are permitted.

Rev. Limiter

231.16.9 ***The standard BriSCA F2 control rev. limiter and associated wiring loom, designed for the permitted Pinto engine, and supplied by BriSCA F2, MUST be fitted and used at all times. This rev. limiter has an RPM limit set at 7,800 RPM.***

231.16.10 ***The use of any other rev. limiter and/or associated wiring loom, other than the BriSCA F2 control components, is NOT permitted.***

231.16.11 ***Disconnection of the rev. limiter through mechanical, electronic, or any other means is NOT permitted.***

231.16.12 ***A BriSCA F2 control rev. limiter will be assigned to an individual driver, and will be electronically sealed.***

231.16.13 ***The BriSCA F2 control rev. limiter must NOT be altered or tampered with by ANY party, other than at the request of BriSCA F2, via the rev. limiter manufacturer.***

231.16.14 ***The rev. limiter MUST be located in an easily accessible position, allowing access to it at any and all times by BriSCA F2 representatives and registered scrutineers only.***

231.16.15 ***Modification of the associated wiring loom, including but not limited to shortening, lengthening, or otherwise altering it, is NOT permitted.***

231.16.16 ***BriSCA F2 reserves the right to swap a driver's rev. limiter for that of another driver, or a replacement item from stock, at ANY time. Failure to comply will result in immediate disciplinary action and a lengthy ban as detailed in the Technical Infringement Penalties section of the rulebook.***

231.16.17 ***BriSCA F2 reserves the right to exchange and/or interrogate ANY ignition components at ANY time. If the rev. limiter has been tampered with in ANY way, the driver will be subject to immediate disciplinary action and a lengthy ban as detailed in the Technical Infringement Penalties section of the rulebook.***

231.17 Fuel pump

231.17.1 Any fuel pump is permitted.

231.18 Water Pump

231.18.1 Electric water pumps are NOT permitted.

231.18.2 Modification of the water pump is NOT permitted unless stated below.

231.18.3 Blocking off the heater-hose outlet is permitted.

231.18.4 Replacement of the standard water pump pulley with a competition type pulley is permitted.

231.18.5 The use of an aluminium water pump pulley is permitted.

231.18.6 Replacement of the standard drive belt with a competition type drive belt is permitted.

231.18.7 Only a single "V" drive belt is permitted.

231.18.8 The use of a toothed drive belt is NOT permitted.

231.19 Thermostat Housing

231.19.1 Modification of the standard thermostat housing is NOT permitted unless stated below.

231.19.2 The welding of a water temperature gauge outlet to the standard thermostat housing is permitted.

231.19.3 Blocking off the bleed hose outlet on the standard thermostat housing (as per the original Sierra Pinto component) is permitted.

231.19.4 Modification of the standard thermostat housing to alter the angle/direction of the outlet pipe is permitted.

231.19.5 A fabricated replacement thermostat housing is permitted.

231.19.6 Any fabricated replacement thermostat housing may be made of steel or aluminium alloy.

231.19.7 Any fabricated replacement thermostat housing MUST only be for the same purpose as the original standard part, i.e. housing a thermostat and directing water to the radiator via an attached pipe/hose.

231.19.8 Additional functionality (other than a temperature sensor outlet, or bleed hose take-off as per the original Sierra Pinto component) is NOT permitted on a standard or fabricated housing.

231.19.9 A water temperature gauge outlet in a fabricated thermostat housing is permitted.

231.19.10 Changing the angle of the outlet pipe (from the original design of the alloy component) in a fabricated thermostat housing, e.g. from upwards to downwards, is permitted.

231.20 Engine Sealing

231.20.1 An appointed scrutineer may require the engine to be sealed at a race meeting as part of the scrutineering procedure.

231.20.2 Wire seals will be used to seal engines, and therefore a number of holes MUST be pre-drilled to accept such seals, as detailed below. Where it is not possible to use a wire seal, e.g. with captive bolts, paint will be used as an alternative.

231.20.3 A hole of 3mm diameter MUST be drilled through the camshaft cover and cylinder head above the No.1 cylinder spark plug.

231.20.4 A hole of 3mm diameter MUST be drilled through the opposite side of the camshaft cover and cylinder head from the No.1 cylinder spark plug.

231.20.5 Additional seals will be fitted as follows:

- The sump will be sealed by removing one sump bolt from each side of the engine and replacing with wire seals.
- The bell-housing will be sealed to the engine by removing two bell-housing bolts and replacing with wire seals.
- The carburettor will be sealed to the inlet manifold, and the inlet manifold to the cylinder head, by the use of paint.

232 Engines – Ford 1.8-Litre Duratec Specification

232.1 Permitted Engine – The Ford 1.8-litre Duratec engine (Engine Type 1.8L (MI4)) is permitted***, subject to the rules below.*** This engine has a nominal bore of 83mm and a stroke of 83.10mm.

232.1.1 ***Use of this engine variant is restricted to authorised drivers only who have regularly used it prior to the 2018 season.***

232.1.2 ***The list of authorised drivers is maintained by BriSCA F2.***

232.1.3 ***New installations/use of this engine variant are NOT permitted.***

232.2 General Rules

232.2.1 Unless otherwise stated, ALL parts appertaining to the engine MUST be standard Ford Duratec parts as used in the 110PS and/or 125PS versions of the 1.8-litre engine. Production tolerances are permitted.

232.2.2 Painting of the inside of the engine is NOT permitted.

232.2.3 Painting of the outside of the engine block is permitted.

232.3 Engine Block

232.3.1 Re-boring the engine block up to a MAXIMUM of 1mm oversize to accept production type (NOT forged) pistons is permitted.

232.3.2 Re-sleeving the block to repair damaged bores is permitted, but the bore MUST remain within the 84mm MAXIMUM diameter (83mm nominal bore plus 1mm oversize).

232.3.3 Align boring of the main bearing housings to reclaim damaged housings is permitted.

232.3.4 Surfacing the block deck is permitted, but pistons must NOT protrude above the block deck at TDC.

232.3.5 Securing the oil seals by the use of cap screws or similar is permitted.

232.4 Crankshaft

232.4.1 The standard 1.8-litre Duratec crankshaft MUST be used. This has a nominal weight of 13.6Kg. No other crankshaft is permitted.

232.4.2 Spot machining, drilling, and/or localised grinding to achieve crankshaft balance only is permitted.

232.4.3 The removal of material to achieve anything other than balance or journal refurbishment is NOT permitted.

232.4.4 Tuftriding, shot peening and shot blasting of the crankshaft is permitted.

232.4.5 Polishing the crankshaft is NOT permitted.
232.4.6 Altering the number of bearings is NOT permitted.
232.4.7 Altering the bearing width is NOT permitted.
232.4.8 The use of narrower bearings of less than MINIMUM standard width is NOT permitted.
232.4.9 The use of oversize and/or undersize bearings of standard or heavy-duty material is permitted, but these MUST be within the standard range available for engine reconditioning.
232.4.10 The relieving of oil-way holes on each crank journal is permitted. The modification of all other oil-ways is NOT permitted.
232.4.11 Cross-drilling of crankshafts is NOT permitted.
232.4.12 Keying the timing gear and front pulley to the crankshaft is permitted. The position for phasing is free.

232.5 Con Rods

232.5.1 Spot machining to achieve con rod balance is permitted on the big-end cap ONLY.
232.5.2 The alteration of any other part of the con rod (except the big-end cap as above) is NOT permitted.
232.5.3 Shot peening and shot blasting of the con rods is permitted.
232.5.4 Polishing the con rods is NOT permitted.
232.5.5 Heavy duty rod bolts are permitted, but the original thread size MUST remain unchanged.

232.6 Pistons

232.6.1 Pistons MUST be of standard Ford production type, and they MUST be of a type freely available for engine remanufacture.
232.6.2 Racing type pistons are NOT permitted.
232.6.3 Forged pistons are NOT permitted.
232.6.4 The piston must NOT exceed a MAXIMUM nominal compression ratio of 10.8 to 1 in an otherwise standard engine.
232.6.5 Pistons must NOT be modified in any way, except for balancing or height equalisation as detailed below.
232.6.6 The machining of pistons to increase valve to piston clearance is NOT permitted.
232.6.7 Machining of the piston crown squish band to equalise piston heights is permitted.
232.6.8 At least one piston MUST retain its original manufacturer's markings.
232.6.9 To achieve balance, the removal of material from any inner surface location is permitted. The removal of material from other locations is NOT permitted.
232.6.10 Piston rings MUST be of standard type.
232.6.11 All three piston rings MUST be fitted on each piston.

232.7 Cylinder Head

232.7.1 Surfacing of the cylinder head is permitted.
232.7.2 Machining of the front engine timing cover to achieve a level gasket surface for the camshaft cover is permitted.

232.7.3 Ports and chambers MUST be left as originally finished by the manufacturer.

232.7.4 The addition or removal of any material to/from ports and chambers is NOT permitted.

232.7.5 Three-angle valve seats are permitted.

232.7.6 Valve seat inserts used to repair damaged heads are permitted. These MUST occupy the EXACT position of the original seat.

232.7.7 Gas flowing of the valve throat and guide area of the ports is permitted. Porting and/or gas flowing work in any other area is NOT permitted. This rule is illustrated by the shaded area in Technical Diagram 20.

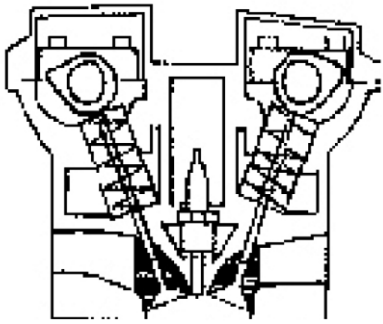

DIAGRAM 20

232.7.8 Machining of the cylinder head in the valve spring platform area to increase the spring installed height is NOT permitted.

232.8 Cylinder Head Valves

232.8.1 Valves MUST be of a standard type with head diameters of 32.5mm for the inlet, and 28mm for the exhaust.

232.8.2 Shortening of the valve stem lengths by up to a MAXIMUM of 0.5mm is permitted, but the collet groove location MUST remain unchanged.

232.8.3 The lightening of valves is NOT permitted.

232.8.4 The re-profiling of valves is NOT permitted.

232.8.5 The replacement of valve guides is permitted, but replacements MUST occupy the original positions.

232.8.6 Thin-wall bronze repair sleeves used to reclaim worn guides are permitted. “Full” bronze guides are NOT permitted.

232.8.7 Single valve springs only (NOT duplex), of any manufacture, are permitted. The original valve spring cap and collets MUST be retained.

232.8.8 The use of shims to reduce installed valve height is permitted.

232.8.9 The original 1.8-litre Duratec valve stem seal and spring platform type MUST be retained.

232.8.10 Threaded or interference fit plugs are permitted for the plugging of injector apertures.

232.9 Camshaft and Followers

232.9.1 The camshaft profile is free, but the machining of other engine parts to allow its fitment is NOT permitted.

232.9.2 The original mechanical bucket type followers MUST be retained. The addition of shims to the valve stem tip as an alternative method of tappet adjustment is permitted.

232.9.3 The standard camshaft bearing diameters MUST be retained.

232.9.4 The use of a vernier timing wheel is permitted.
232.9.5 Camshafts with special flanges to achieve vernier adjustment are permitted.
232.9.6 Modification of the standard hydraulic timing chain tensioner to provide a fixed means of timing chain adjustment is permitted.

232.10 Gaskets and Seals

232.10.1 Any standard non-competition head gasket is permitted.
232.10.2 Carburettor gaskets MUST be of the original type.
232.10.3 A MAXIMUM thickness of 1mm is permitted for the gasket seal between the inlet manifold and the cylinder head. Alternatively, RTV sealer or a similar product is permitted for this seal.
232.10.4 All other gaskets MUST be a standard type.

232.11 Carburettor

232.11.1 The standard Weber 32/36 DGV or Weber 32/36 DGAV carburettor MUST be used.
232.11.2 The MAXIMUM permitted size of the chokes is 26mm diameter for the smaller, and 27mm diameter for the larger.
232.11.3 Polishing and/or re-profiling is NOT permitted.
232.11.4 Modifications to the carburettor body and/or original design are NOT permitted.
232.11.5 The interchanging of tops from other Weber carburettor models is NOT permitted.
232.11.6 All gaskets MUST remain standard and original in design and manufacture.
232.11.7 A single original specification insulator block with two gaskets, as fitted in the Ford Pinto application, MUST be fitted between the carburettor and the inlet manifold (the combined total thickness is approximately 5mm depending on the compression of the gaskets). ***The insulator block and gaskets MUST be of the "single unequal oval hole" design. Use of the rare "twin-hole" RS Mexico insulator block is NOT permitted.***
232.11.8 Changing the main jets, primary and secondary jets, auxiliary venturi, emulsion tubes, and/or accelerator pump jets for alternative standard parts is permitted.
232.11.9 The auxiliary venturis MUST face downwards towards the butterflies.
232.11.10 ***Reaming/enlarging the auxiliary venturis is NOT permitted.***
232.11.11 The modification of chokes to open together is permitted. The fitting of replacement spindles with standard screws is permitted.
232.11.12 The removal of cold-starting devices is permitted. Blanking off the retaining lugs and subsequent holes is also permitted.
232.11.13 Enlarging and/or modifying the air and fuel galleries is NOT permitted. Fuel may enter on either side of the float chamber.
232.11.14 The modification and/or weighting of floats is NOT permitted. The floats MUST control the fuel flow.
232.11.15 The enlargement and/or modification of needle valves is NOT permitted.

232.11.16 Needle valves MUST be no larger than a MAXIMUM of size "250"***, subject to manufacturing tolerances.***

232.11.17 The power valve MUST be present and fitted in the base of the fuel bowl. Sealing off the power valve and/or removing the diaphragm is permitted.

232.11.18 Trumpets are NOT permitted.

232.11.19 The use of a grub-screw or similar device to secure the auxiliary venturis to the carburettor body is permitted.

232.11.20 The blanking off and/or modification of top end enrichment devices is permitted.

232.11.21 A secondary fixing MUST be used on the fuel feed inlet pipe connection to the carburettor. The secondary fixing MUST be completely independent of the primary fixing for the fuel feed inlet pipe, and is designed to prevent the inlet tube (with the fuel pipe still attached to it) from parting company with the carburettor body.

232.12 Inlet Manifold

232.12.1 The BriSCA F2 control inlet manifold is the ONLY inlet manifold permitted.

232.12.2 The inlet manifold must NOT be modified in any way, other than permitted alterations as stipulated below.

232.12.3 Inlet port matching of the carburettor to the manifold, and/or the manifold to the head is NOT permitted.

232.12.4 The fitment of a steel support to stabilise the inlet manifold is permitted, but any fastening must NOT penetrate the manifold runner or plenum.

232.12.5 Welded repairs to cracked manifolds are permitted, but subsequent internal finishing MUST be consistent with the original and NOT be deemed to have affected manifold performance.

232.13 Restrictor Plate

232.13.1 A BriSCA F2 control restrictor plate may be fitted between the carburettor gasket plate and the inlet manifold.

232.13.2 If fitted, the restrictor plate must NOT be modified in any way.

232.13.3 BriSCA F2 reserves the right to mandate the use of, or change the size of the restrictor plate if it is deemed necessary to maintain competitive equality with the 2.0-litre SOHC (Pinto) and or 2.0-litre Zetec engines.

232.14 Exhaust Manifold

232.14.1 The exhaust manifold and system are free, subject to the separately documented Exhaust/Silencer rules.

232.14.2 A silencer MUST be fitted (refer to separately documented Exhaust/Silencer rules).

232.15 Lubrication

232.15.1 Modification and/or baffling of the original aluminium sump is permitted.

232.15.2 A replacement bespoke steel sump is permitted.

232.15.3 Dry sumps are NOT permitted.

232.15.4 The oil pump MUST remain as standard, but alteration of the relief pressure valve is permitted.
232.15.5 The modification of oil pickup pipes is permitted.
232.15.6 Oil pickup pipes MUST terminate in the sump.
232.15.7 Additional scavenge pumps etc. are NOT permitted.
232.15.8 The use of an adapter/sandwich plate for the fitment of a remote oil cooler and/or oil filter is permitted.
232.15.9 Remote oil filters are permitted.
232.15.10 Compact oil filters are permitted.
232.15.11 All oil galleries MUST be unmodified.
232.15.12 The relieving of oil-way holes is NOT permitted, with the exception of the crank journals (see crankshaft rules).

232.16 Flywheel And Clutch

232.16.1 Replacement of the standard dual mass flywheel with a one piece component made of iron or steel is permitted.
232.16.2 Integral ring-gears are permitted, but all ring gears MUST be of the standard 1.8-litre Duratec diameter.
232.16.3 Excluding the ring gear, the flywheel must NOT be thicker than 15mm at any point, and must NOT be thinner than 8.5mm at any point.
232.16.4 Heavy duty flywheel mounting bolts are permitted.
232.16.5 The standard 2.0-litre SOHC "Pinto" engine clutch MUST be used.
232.16.6 The total weight of the complete flywheel assembly, including clutch, cover, driven plate and all mounting bolts MUST be at least a MINIMUM of 10.14Kg.

232.17 Ignition System

232.17.1 The BriSCA F2 control ECU is the ONLY ECU permitted for use. This ECU has a fixed advance curve with an RPM limit set at 7,750 RPM. This ECU has only a single engine sensor which is for the sensing of crankshaft speed.
232.17.2 Changes to the RPM limit may be specified by BriSCA F2 on review.
232.17.3 Devices capable of altering any input, output, or intended ECU control are NOT permitted.
232.17.4 The standard 1.8-litre Duratec front pulley MUST be retained with 36-1 trigger pattern.
232.17.5 Lightening of the front pulley is NOT permitted.
232.17.6 The front pulley timing position relative to the crankshaft is free.
232.17.7 The standard speed sensor MUST be retained.
232.17.8 BriSCA F2 and/or its appointed representative reserve the right to swap ECUs between cars competing at the same meeting in an effort to aid policing of the rules. ECUs will be pre-marked and subsequently returned to their owner after evaluation. Alternatively, BriSCA F2 reserves the right to swap a competitor's ECU for a control ECU, the pre-marked original being returned to the owner after evaluation.

232.18 Fuel Pump

232.18.1 Any fuel pump is permitted.

232.19 Water pump

232.19.1 The standard water pump MUST be used, and MUST be driven by a belt from the crankshaft.

232.19.2 Fitting of an idler wheel to accommodate belt tension and driving of the pump in the correct direction is permitted.

232.20 Thermostat Housing

232.20.1 The thermostat housing MUST remain as standard.

232.21 Engine Sealing

232.21.1 An appointed scrutineer may require the engine to be sealed at a race meeting as part of the scrutineering procedure.

232.21.2 Wire seals will be used to seal engines by way of the removal of a number of bolts securing the camshaft cover to the cylinder head, and the sump to the block. Where it is not possible to use a wire seal, e.g. with captive bolts, paint will be used as an alternative.

232.21.3 Additional seals will be fitted as follows:

- The bell-housing will be sealed to the engine by removing two bell-housing bolts and replacing with wire seals.
- The carburettor will be sealed to the inlet manifold, and the inlet manifold to the cylinder head, by the use of paint.

Note: Duratec 2.0-Litre Variant

- ***The 2.0-litre Duratec engene variant, previously used on a trial basis, is NO LONGER permitted for use by ANY driver.***

233 Engines – Ford 2.0-Litre 16v Zetec Specification

233.1 Permitted Engine – The 136PS form of the Ford 2.0-litre 16v Zetec petrol engine is permitted, in the following specification only. This engine has a nominal bore of 84.80mm and a stroke of 88.00mm.

233.1.1 The UK/European specification Ford Zetec 1988cc 16v petrol engine (commonly referred to as the "black-top" engine due to its black plastic camshaft cover) is permitted. (This is additionally referred to as the phase/series 3 engine).

233.1.2 Only the 136PS form of the engine with a nominal bore of 84.80mm and stroke of 88.00mm is permitted.

233.1.3 A new standard un-coded Ford replacement engine to the above and below specification is permitted.

233.1.4 In ALL cases the engine MUST remain in its standard form.

233.1.5 All other forms of the engine, not specified here, are NOT permitted.

233.1.6 The engine block MUST have one of the following codes stamped on it:

- NGB, NGC, NGD (from the Ford Mondeo Mk2 16v 1996-2000)
- EDDB, EDDC, EDDD, EDDF (from the Ford Focus Mk1 16v 1998-2004)
- EBBC, EBBD, EDBA, EDBB (from the Ford Cougar 1998-2001)

The engine code is located on the exhaust side of the cylinder block, i.e. the left side when viewed from the driving position.

233.1.7 ALL codes and/or ID numbers MUST be visible and untouched.

233.1.8 Production tolerances are permitted, but the total swept volume must NOT exceed a MAXIMUM of 1989cc.

233.2 General Principles

233.2.1 The overriding principle of these specifications for the 2.0-litre Zetec engine is that unless it is stated that an action may be taken then a driver MUST work on the principle that it cannot.

233.2.2 The emphasis of these specifications is that the 2.0-litre Zetec engine is an engine that MUST remain in its standard form.

233.2.3 Stringent technical checks WILL be carried out on a regular basis, and any contravention of the rules will result in disciplinary action.

233.2.4 The engine mount MUST be constructed so as to allow the insertion of a crankshaft-locking pin in to the block as part of the technical inspection process.

233.2.5 Performance of the 2.0-litre Zetec engine in relation to other permitted engines will be closely monitored by all parties within BriSCA F2 – Promoters, drivers, scrutineers, etc.

233.3 Component Legality

233.3.1 Any component suspected of being illegal, but which the driver claims to be legal according to the rules, MUST be left with staging promotion until the matter is resolved.

233.3.2 Failure to leave a suspected illegal component with the staging promotion when requested will automatically render the component illegal, and leave the driver subject to disciplinary action.

233.3.3 Where a component is suspected of being illegal, it is the responsibility of the driver to prove its legality to BriSCA F2 by way of written proof of the component's origin.

233.3.4 Written proof of any suspected illegal component's origin must be forwarded to BriSCA F2 within 7 days of the initial accusation.

233.3.5 Failure to provide written proof within the required timeframe will render any suspected component illegal, and will result in an immediate suspension from racing and a referral for disciplinary action.

233.3.6 With the exception of Championship event post-race scrutineering, BriSCA F2 reserves the right to strip and inspect ANY Zetec engine it sees fit. A fee of £300 will be payable to the driver where their engine has been stripped and has been found to fully comply with the technical specifications in force at the time.

233.4 Engine Claim

233.4.1 BriSCA F2 reserves the right to purchase any Zetec engine from a driver under this claimer rule. For the purposes of this rule the term "engine" relates to the complete cylinder head/engine block assembly only. The following components are EXCLUDED from the claimer rule:

- Inlet manifold
- Carburetor

- Flywheel
- Clutch
- Starter motor
- Sump
- Exhaust manifold
- ECU
- Wiring loom
- HT leads
- Radiator cooling fan
- Water pump and pipe
- Additional water pump pulleys and bracket

233.4.2 Under this claimer rule the engine MUST be purchased on the day that it was used at an officially sanctioned BriSCA F2 race meeting, and within 30 minutes of the completion of the race meeting.

233.4.3 Under this claimer rule the amount payable to the driver will be fixed at £950 (inclusive of VAT).

233.4.4 A fully registered driver, running a Zetec engine, is also permitted to claim and purchase a Zetec engine from another competitor for the same fixed amount as specified above, and consisting of the same components.

233.4.5 Any driver wishing to claim/purchase another competitor's engine MUST have raced in the same meeting as the other party, and MUST be using a Zetec engine in their own car.

233.4.6 Any driver wishing to claim/purchase another competitor's engine MUST initiate the process through the staging promoter at the meeting in question. An engine purchase form MUST be completed and a £150 protest fee MUST be lodged with the promoter BEFORE the other party is approached.

233.4.7 BriSCA F2 reserves the right to reject a driver's request to claim/purchase if such a request is deemed not to have sound foundation.

233.4.8 BriSCA F2 reserves the right to monitor the procedure of engine claims to ensure that it is not misused or abused.

233.5 General Specification – Standard Components

233.5.1 The expression 'Standard', 'Standard production', or any 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 permitted engine.

233.5.2 Only machining and component preparation carried out by Ford Motor Company Ltd., or by a Ford Motor Company Ltd authorised sub-contractor is permitted, unless otherwise specified.

233.5.3 Only Ford standard parts, manufactured by Ford Motor Company Ltd. or an authorised sub-contractor, specifically for the permitted 2.0-litre Zetec engine types detailed above are permitted.

233.5.4 The interchanging of components from engines not listed in the permitted 2.0-litre Zetec engine types detailed above is NOT permitted.

233.5.5 The engine and associated components MUST remain exactly as produced by Ford Motor Company Ltd. unless explicitly detailed in these specifications.

233.5.6 BriSCA F2 reserves the right to prohibit the use of specific components introduced as production changes, if in their opinion, they are deemed to have a performance advantage.

233.6 General Specification – Materials, Finishing and Reworking

233.6.1 The addition of ANY material, including but not limited to metal, plastic, or composite, by any means, including but not limited to welding, bonding, encapsulation or encasement, to ANY component is NOT permitted.

233.6.2 Specific repair of the mounting points of the cylinder block to the transmission and/or chassis is permitted.

233.6.3 Casting repairs to other components, not listed above, may be allowed with the prior written approval of BriSCA F2.

233.6.4 The use of cleaning processes is permitted, however, the surface finish MUST remain standard and must NOT be affected by the process in any way.

233.6.5 The modification and/or extension of any production deburring or imperfection removal that took place during initial manufacture is NOT permitted.

233.6.6 The decision of BriSCA F2 will be final if any dispute arises regarding the amount of tooling and/or other marks that are evident on any particular component.

233.6.7 Protection of exterior surfaces of ferrous components of the complete engine assembly, by paint or similar means, is permitted.

233.6.8 Application of ANY protective finish to ANY internal component is NOT permitted.

233.6.9 Application of ANY protective finish to ANY aluminium component is NOT permitted.

233.6.10 Any treatment that alters, in any way, the surface finish, hardness, and/or any other property of the original production component is NOT permitted.

233.6.11 The removal of any deposit derived from the lubrication and/or combustion process naturally occurring during the running of the engine is permitted.

233.6.12 The rework or modification of ANY component is NOT permitted unless explicitly stated in these rules or unless specifically authorised by BriSCA F2.

233.6.13 Any statement regarding a MINIMUM weight or dimension does NOT permit the reworking of components to achieve such measurements unless carried out in accordance with the documented specifications.

233.7 General Specification – Fasteners

233.7.1 The use of non-standard replacement fasteners, nuts, bolts, screws, studs and/or washers, which are not connected with or which do not

support any moving parts of the engine or its compulsorily retained accessories, is permitted, unless otherwise noted.

233.7.2 Freedom granted to any fastener does NOT allow for freedom to move components relative to each other.

233.7.3 The use of thread locking compounds is permitted.

233.8 Engine Block

233.8.1 Machining of the cylinder block, including but not limited to decking, is NOT permitted.

233.8.2 Line-boring of the crankshaft and/or camshaft housings is NOT permitted.

233.8.3 Repairing damaged cylinder bores with cylinder liners is NOT permitted.

233.8.4 Honing/glaze-busting of the cylinder bores is permitted.

233.8.5 Pistons must NOT protrude above the face of the block at TDC.

233.8.6 Modification of the standard crank-case breather tank, including its removal, is permitted, however, air and/or oil must NOT escape from this area other than through pipework to a catch-tank.

233.8.7 The flywheel/crankshaft sensor and its associated housing on the cylinder block must NOT be modified in any way.

233.9 Crankshaft

233.9.1 A standard crankshaft MUST be used.

233.9.2 Balancing of the crankshaft is NOT permitted.

233.9.3 Polishing of the nine crankshaft bearing surfaces is permitted.

233.9.4 Polishing of ANY other section(s) of the crankshaft, other than the nine bearing surfaces as detailed above, is NOT permitted.

233.9.5 The re-grinding of crankshaft journals for reclaim is permitted, ***up to a MAXIMUM of a 0.25mm grind.***

233.9.6 Crankshaft journals MUST remain within Ford positional tolerances if a repair re-grind is carried out.

233.9.7 The crankshaft ***pulley/damper unit*** MUST be retained.

233.9.8 Modification of the crankshaft ***pulley/damper unit*** is NOT permitted.

233.9.9 Use of the crankshaft pulley to drive the water-pump is permitted.

233.9.10 The installation of an additional pulley, in front of the crankshaft ***pulley/damper unit***, to drive the water-pump is permitted.

233.9.11 Alteration of the number of crankshaft bearings is NOT permitted.

233.9.12 The fitment of bearings of less than standard production width is NOT permitted.

233.9.13 The use of standard oversize and/or undersize bearings is permitted, ***up to a MAXIMUM of 0.25mm.***

233.10 Con-Rods

233.10.1 Con-rods MUST be standard.

233.10.2 The alteration of con-rods, including but not limited to machining, grinding and/or polishing, is NOT permitted.

233.10.3 Removal of metal material from the con-rod and/or cap is NOT permitted.

233.10.4 Con-rod bolts MUST be standard Ford production items.

233.10.5 Aftermarket con-rod bolts are NOT permitted.
233.10.6 Modification of con-rods to fit bolts is NOT permitted.

233.11 Pistons

233.11.1 Pistons MUST be standard unmodified production items.
233.11.2 All three piston rings MUST be fitted on each piston, as originally designed/intended.
233.11.3 Piston rings MUST be standard production components, or, replacement components to Ford Motor Company Ltd. specifications.
233.11.4 Aftermarket steel piston rings are NOT permitted.

233.12 Cylinder Head

233.12.1 The addition, removal, replacement and/or transfer of material on the cylinder head is NOT permitted, unless stated below.
233.12.2 Simple cleaning of the cylinder head, which does not alter the shape of the component in any way, is permitted.
233.12.3 Minimal material removal from the cylinder head face to correct combustion chamber volume, and/or reclaim head flatness, is permitted.
233.12.4 The cylinder head MUST achieve at least a MINIMUM thickness of 132.6mm at any and all points. Measurement of the cylinder head thickness will be carried out using a 125.00mm-150.00mm micrometer or digital Vernier calliper. Measurements are taken from the extreme top and bottom faces of the cylinder head and exclude any gaskets. This is shown in Photo Illustration 01.

ILLUSTRATION 01

233.12.5 Replacement of the valve guides and/or valve seat inserts is NOT permitted.

233.12.6 Internal rework of the combustion chamber(s) is NOT permitted.

233.12.7 The use of high-tensile, competition, and/or ARP cylinder-head bolts is NOT permitted

233.13 Cylinder Head Valve Train

233.13.1 Modification of valve train components, and or replacement with non-standard parts, is NOT permitted, unless stated below.

233.13.2 Modification to alter the thickness of the tappet shim/follower on top of the cam bucket, to achieve the correct valve clearance, is permitted.

233.13.3 The shimming and/or packing of valve springs is NOT permitted.

233.13.4 Valves MUST remain standard Ford Motor Company Ltd. manufactured and supplied items. The use of aftermarket valves is NOT permitted.

233.13.5 Re-profiling and/or polishing valves is NOT permitted.

233.13.6 The original 45-degree valve seat angle (with 90 degree included) MUST be maintained.

233.13.7 Standard valve stem seals MUST be retained.

233.14 Camshaft and Pulleys

233.14.1 The standard production camshafts, as fitted to the permitted 2.0-litre Zetec engine types detailed above, MUST be used.

233.14.2 Use of camshafts from the 1.8-litre "Black-Top" Zetec engine is NOT permitted.

233.14.3 The interchanging of inlet and exhaust camshafts is NOT permitted. Camshafts are identified by two small casting rings; the rings being located in different positions on the inlet and exhaust camshafts. The identification rings on the inlet camshaft are located separately, one adjacent to inlet valve four, and the other adjacent to inlet valve six. The inlet camshaft is shown at the bottom in Photo Illustration 02.

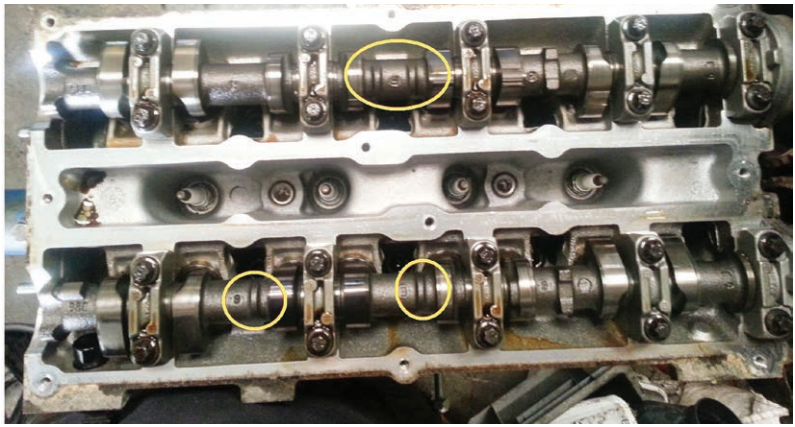

ILLUSTRATION 02

The identification rings on the exhaust camshaft are both located centrally, adjacent to each other, between cylinders two and three. The exhaust camshaft is shown at the top in Photo Illustration 02.

233.14.4 The use of a camshaft with damaged timing faces is NOT permitted.

233.14.5 Modification of the camshafts in any way is NOT permitted.

233.14.6 Camshafts MUST be fully manufactured and ground by Ford Motor Company Ltd.

233.14.7 The surface finish MUST remain as originally produced. Any other surface finish is NOT permitted.

233.14.8 Grinding camshafts from blanks, regrinding camshafts, and/or re-profiling camshafts is NOT permitted.

233.14.9 Shot-peening, shot-blasting, surface treatments and/or polishing are NOT permitted.

233.14.10 The standard Ford production camshaft drive pulleys MUST be used. These are shown in Photo Illustration 03.

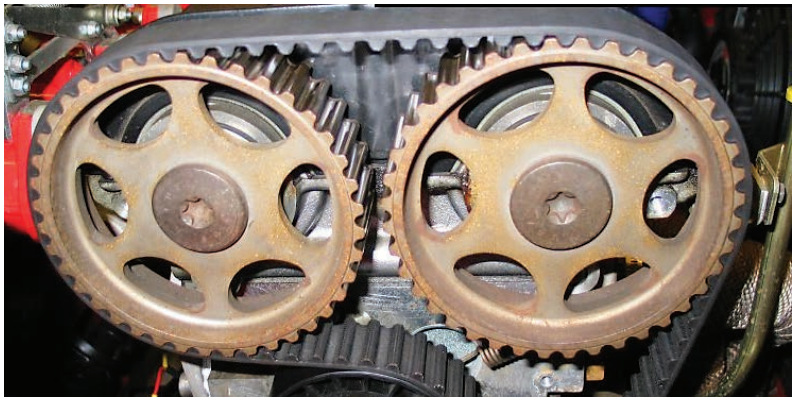

ILLUSTRATION 03

233.14.11 Non-standard, competition, and/or modified drive pulleys are NOT permitted.

233.14.12 Locking the spring-loaded cam-belt tensioner, or replacing it with a fixed item, is permitted.

233.14.13 Camshaft timing MUST remain in the standard Ford position within a tolerance of 0.010" (0.254mm) advance or retard measured on the pistons' position from TDC.

233.14.14 The timing of the two camshafts must NOT be altered independently of each other. A standard Ford locking bar, or flat steel bar, MUST be able to simultaneously pass through the slots in the back of the two camshafts when in TDC position. Failure to comply will result in immediate disciplinary action. The TDC position and camshaft slots are shown in Photo Illustration 04.

233.14.15 A profile-checking gauge will be used by BriSCA F2 to check that camshafts are standard.

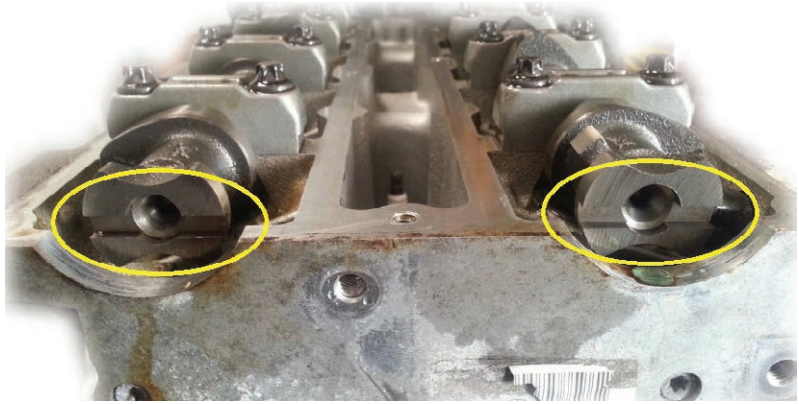

ILLUSTRATION 04

233.15 Gaskets and Seals

233.15.1 Any standard non-competition head gasket is permitted.

233.15.2 The use of an aftermarket gasket, or silicone-based sealer, to seal the inlet manifold to the cylinder head is permitted.

233.15.3 The inlet manifold gasket, or silicone-based sealer, sealing the inlet manifold to the cylinder head, must NOT exceed a MAXIMUM thickness of 5mm.

233.15.4 ***Carburettor gaskets MUST be of the original type, as used on the original Ford Pinto application.***

233.15.5 All other gaskets are free.

233.16 Carburettor

233.16.1 The standard Weber 32/36 DGV or Weber 32/36 DGAV carburettor MUST be used.

233.16.2 The MAXIMUM permitted size of the chokes is 26mm diameter for the smaller, and 27mm diameter for the larger.

233.16.3 Polishing and/or re-profiling is NOT permitted.

233.16.4 Modifications to the carburettor body and/or original design are NOT permitted.

233.16.5 The interchanging of tops from other Weber carburettor models is NOT permitted.

233.16.6 All gaskets MUST remain standard and original in design and manufacture.

233.16.7 A single original specification insulator block with two gaskets, as fitted in the Ford Pinto application, MUST be fitted between the carburettor and the inlet manifold (the combined total thickness is approximately 5mm depending on the compression of the gaskets). ***The insulator block and gaskets MUST be of the "single unequal oval hole" design. Use of the rare "twin-hole" RS Mexico insulator block is NOT permitted.***

233.16.8 Changing the main jets, primary and secondary jets, auxiliary venturi, emulsion tubes, and/or accelerator pump jets for alternative standard parts is permitted.

233.16.9 The auxiliary venturis MUST face downwards towards the butterflies.

233.16.10 ***Reaming/enlarging the auxiliary venturis is NOT permitted.***

233.16.11 The modification of chokes to open together is permitted. The fitting of replacement spindles with standard screws is permitted.

233.16.12 The removal of cold-starting devices is permitted. Blanking off the retaining lugs and subsequent holes is also permitted.

233.16.13 Enlarging and/or modifying the air and fuel galleries is NOT permitted. Fuel may enter on either side of the float chamber.

233.16.14 The modification and/or weighting of floats is NOT permitted. The floats MUST control the fuel flow.

233.16.15 The enlargement and/or modification of needle valves is NOT permitted.

233.16.16 Needle valves MUST be no larger than a MAXIMUM of size "250"***, subject to manufacturing tolerances.***

233.16.17 The power valve MUST be present and fitted in the base of the fuel bowl. Sealing off the power valve and/or removing the diaphragm is permitted.

233.16.18 Trumpets are NOT permitted.

233.16.19 The use of a grub-screw or similar device to secure the auxiliary venturis to the carburettor body is permitted.

233.16.20 The blanking off and/or modification of top end enrichment devices is permitted.

233.16.21 A secondary fixing MUST be used on the fuel feed inlet pipe connection to the carburettor. The secondary fixing MUST be completely independent of the primary fixing for the fuel feed inlet pipe, and is designed to prevent the inlet tube (with the fuel pipe still attached to it) from parting company with the carburettor body.

233.17 Inlet Manifold

233.17.1 The standard BriSCA F2 control inlet manifold, designed for the permitted Zetec engine types, and stamped accordingly, MUST be used.

233.17.2 The use of any inlet manifold, other than the BriSCA F2 control component, is NOT permitted.

233.17.3 Internal modification of the inlet manifold in any way, including but not limited to shot-blasting, is NOT permitted.

233.17.4 External modification of the inlet manifold in any way is NOT permitted.

233.17.5 The angle of relationship between the carburettor mounting face and the cylinder head mounting face must NOT be altered in any way.

233.17.6 Blanking off the brake servo take-off is permitted, but any blanking device must NOT penetrate the manifold runner or plenum.

233.17.7 The fitment of a steel support to stabilise the inlet manifold is permitted, but any fastening must NOT penetrate the manifold runner or plenum. The drilling of holes, or other modification of the inlet manifold to facilitate the fitting of a support, is NOT permitted.

233.17.8 Welded repairs to cracked manifolds are permitted, but subsequent internal finishing MUST be consistent with the original and NOT be deemed to have affected manifold performance.

233.18 Lubrication

Sumps

233.18.1 A fabricated steel sump is permitted.

233.18.2 The ONLY permitted aluminum sump is a standard Ford component as detailed below. Any other aluminum sump is NOT permitted.

233.18.3 The standard two-piece Ford sump, as fitted to the permitted 2.0-litre "Black-Top" Zetec engine types detailed above, is permitted.

233.18.4 The standard one-piece Ford sump, as fitted to the early "Silver-Top" Zetec engine variants, is permitted.

233.18.5 Modification of the original cast aluminium sump section of permitted standard Ford sumps (as detailed above) to remove webbing, for the purpose of fitting a starter motor only, is permitted. Modification is only permitted in the area directly next to the start motor.

233.18.6 **Black-Top Sump** – Replacement of the lower tin component of permitted standard "Black-Top" Ford sumps (as detailed above) with a fabricated part, to increase oil capacity, is permitted.

233.18.7 **Black-Top Sump** – Modification of the lower tin component of permitted standard "Black-Top" Ford sumps (as detailed above), to increase oil capacity, is permitted.

233.18.8 **Silver-Top Sump** – Modification of the original permitted standard "Silver-Top" Ford sump (as detailed above) to increase oil capacity, or remove part of the cast section, is permitted. The first 90mm in depth below the level of the block face to which it is bolted MUST remain as original along the entire length of the sump.

233.18.9 **Sierra CVH Sump** – A standard 1.8-litre Ford Sierra CVH steel sump is permitted. Modification of this sump to fit the Zetec engine is permitted.

233.18.10 **All Sumps –** The total external depth of the sump MUST measure at least a MINIMUM of 160mm along at least 50% of its length.

233.18.11 An original steel baffle plate, as used in the "Silver-Top" engine/sump, may be fitted directly onto the "Black-Top" engine cylinder block by either of the following methods:

- Using original "Silver-Top" main-bearing cap bolts with tube spacers,

OR

- Welding 8mm bolts on to the existing "Black-Top" main bearing cap bolts. In this case, one of the bolts is also permitted to support the oil pickup pipe (see below).

Machining of main bearing bolts is NOT permitted.

233.18.12 The use of an aluminium baffle plate is permitted with the permitted one-piece "Silver-Top" sump, either attached to the cylinder block (as above), or welded inside the sump itself.

233.18.13 Dry sumps are NOT permitted.

Oil Pickup Pipe

233.18.14 Replacement or modification of a single bearing cap bolt, to allow support and/or relocation of the oil pickup pipe, is permitted.

233.18.15 The welding of a stud to a main bearing cap bolt, to support the oil pickup pipe, is permitted.

233.18.16 Machining of main bearing bolts is NOT permitted.

233.18.17 Modification of the oil pickup pipe is permitted.

Oil Filters

233.18.18 Remote oil filters are NOT permitted.

233.18.19 Competition oil filters are NOT permitted.

233.18.20 Replacement of the standard oil filter with a shorter filter is permitted.

233.18.21 Any shorter oil filter MUST be identically located to the standard oil filter.

233.18.22 Any shorter oil filter MUST be a commonly available non-competition item.

Oil Pump

233.18.23 Modification of the standard Ford oil pump and/or front cover, including but not limited to the plunger, pressure valve and/or spring, is NOT permitted.

Oil Coolers

233.18.24 The use of an oil-cooler is NOT permitted.

Oil Spray Jets

233.18.25 Removal or modification of the four standard oil spray jets in the cylinder block is NOT permitted.

Dipstick

233.18.26 The standard oil dipstick and tube MUST be fitted to the cylinder block.

233.18.27 Modification of the standard oil dipstick and/or tube to fit the sump, dependant on the sump being used, is permitted.

233.19 Flywheel And Clutch

233.19.1 The standard BriSCA F2 control flywheel, designed for the permitted Zetec engine types, with a registered serial number, MUST be used.

233.19.2 The use of any flywheel, other than the BriSCA F2 control component, is NOT permitted.

233.19.3 The standard 2.0-litre Ford Pinto flywheel ring-gear is permitted.

233.19.4 The standard flywheel ring-gear for the permitted Zetec engine types, as detailed above, is permitted.

233.19.5 The use of any other flywheel ring-gear, other than those detailed above, is NOT permitted.

233.19.6 The flywheel, ring-gear and mounting bolts combined MUST weigh at least a MINIMUM of 6.2Kg. This MINIMUM weight excludes the clutch and clutch fixing bolts.

233.19.7 Modifications to the BriSCA F2 control flywheel are NOT permitted.

233.19.8 Flywheel bolts are free, but they MUST be of a ferrous material.

233.19.9 The clutch MUST be a standard Ford Pinto based 8.5in component.

233.19.10 The clutch must NOT be modified.

233.19.11 A standard Ford Pinto based starter motor, or a hi-torque competition replacement, MUST be fitted.

233.20 Ignition System, Electrical, and Engine Control Unit (ECU)

233.20.1 A Ford crankshaft speed sensor MUST be fitted to the standard manual sensor housing, and connected to the coil as the ONLY means of ignition timing.

233.20.2 A genuine Ford ignition coil as fitted to the permitted 2.0-litre Zetec engine types detailed above, or a direct aftermarket replacement ignition coil with a part number cross-referencing directly to the original Ford item, MUST be used.

233.20.3 The use of any other sensor(s) or alternative ignition coils (other than those detailed above), alternative ignition systems, and/or any other method to trigger, distribute, and/or time the ignition, is NOT permitted.

233.20.4 The flywheel/crankshaft sensor and it's associated housing on the cylinder block must NOT be modified in any way.

233.20.5 The crankshaft speed sensor MUST have an air gap between it and the flywheel measuring between a MINIMUM of 0.1mm, and a MAXIMUM of 0.8mm.

233.20.6 A 25mm diameter hole MUST be cut in the bell-housing, above the crankshaft sensor, to allow inspection of the sensor and measurement of the air gap with feeler gauges.

233.20.7 ***A*** standard BriSCA F2 control ECU and wiring loom, designed for the permitted Zetec engine, and supplied by BriSCA F2***,*** MUST be used. This ECU has an RPM limit set at 7,800 RPM.

233.20.8 The use of any other ECU and/or wiring loom, other than the BriSCA F2 control components, is NOT permitted.

233.20.9 A BriSCA F2 control ECU will be assigned to ***an individual*** driver, and will be electronically sealed.

233.20.10 The BriSCA F2 control ECU must NOT be altered or tampered with by ANY party, other than at the request of BriSCA F2, via the ECU manufacturer.

233.20.11 The ECU diagnostic connector MUST be located in an ***easily*** accessible position allowing access to it at any and all times by BriSCA F2 representatives and registered scrutineers only.

233.20.12 Modification of the BriSCA F2 control wiring loom, including but not limited to shortening, lengthening, or otherwise altering it, is NOT permitted.

233.20.13 Repositioning of the coil unit is permitted.

233.20.14 Any HT leads to the sparking plugs are permitted – For example the longer leads as fitted to the Ford Cougar V6.

233.20.15 Standard heat range sparking plugs MUST be used. Sparking plugs outside the standard heat range are NOT permitted.

233.20.16 BriSCA F2 reserves the right to swap a driver's ECU for that of another driver, or a replacement item from stock, at ANY time. Failure to comply will result in immediate disciplinary action and a lengthy ban as detailed in ***the Technical Infringement Penalties section of the rulebook***.

233.20.17 BriSCA F2 reserves the right to exchange and/or interrogate ANY ignition components at ANY time. If ***an*** ECU has been tampered with in ANY way, the driver will be subject to immediate disciplinary action and a lengthy ban as detailed in ***the Technical Infringement Penalties section of the rulebook***.

233.21 Fuel pump

233.21.1 Any fuel pump is permitted.

233.22 Cooling System

233.22.1 The single standard production water pump and housing, as fitted to the permitted 2.0-litre Zetec engine types detailed above, MUST be retained and used. Modification to the water pump drive, its rotational speed, and direction are permitted only in accordance with the rules below.

233.22.2 The use of a reverse water pump impeller is permitted.

233.22.3 Any reverse water pump impeller MUST retain 6 blades, as per the original Ford water pump fitted to the engine.

233.22.4 Any reverse water pump impeller MUST be fitted to the standard water pump.

233.22.5 The fitment of two additional pulleys, one in front of the crankshaft damper and one on the water pump, for the express purpose of reversing the direction of the water pump to match the crankshaft when using a reverse impeller, is permitted.

233.22.6 The fitment of a single additional idler pulley, for the express purpose of reversing the direction of an unmodified water pump to the opposite of the crankshaft, is permitted. Any such single pulley MUST be fitted using a bracket bolted to existing engine bolt holes only. The drilling of additional holes for mounting a bracket is NOT permitted.

233.22.7 The use of any other water pump to circulate or assist in the circulation of coolant liquid, other than the single standard pump specified above, is NOT permitted.

233.22.8 Any mechanical fan MUST be securely fitted to either the water pump or the crankshaft.

233.22.9 The fitting of a mechanical fan to additional pulleys and/or brackets, is NOT permitted.

233.22.10 Any thermostat housing is permitted.

233.23 Engine Sealing

233.23.1 An appointed scrutineer may require the engine to be sealed at a race meeting as part of the scrutineering procedure.

233.23.2 Wire seals will be used to seal engines by way of the removal of a number of bolts securing the camshaft cover to the cylinder head, and the sump to the block. Where it is not possible to use a wire seal, e.g. with captive bolts, paint will be used as an alternative.

233.23.3 Additional seals will be fitted as follows:

- The bell-housing will be sealed to the engine by removing two bell-housing bolts and replacing with wire seals.
- The carburettor will be sealed to the inlet manifold, and the inlet manifold to the cylinder head, by the use of paint.

233.24 Engine Covers

233.24.1 Modification and/or removal of the cam-belt covers is permitted. It is, however, recommended that some form of cover over the cam-belt be retained.

233.24.2 Modification and/or replacement of the camshaft cover assembly is NOT permitted, unless stated below.

233.24.3 Blanking off the original camshaft cover breather outlet, and moving the breather outlet to any point on the opposite side of the cover is permitted.

233.24.4 Blanking off the oil filler cap is permitted.

233.24.5 Any oil filler cap MUST be secured with a secondary fixing to prevent it from unscrewing and detaching. It is recommended that this is achieved with lock-wire or a steel spring.

CHAPTER 13

TECHNICAL INFRINGEMENT PENALTIES

301 Left-Side Weight Distribution

301.1 Pre-meeting or pre-race failures are not liable to penalties.

301.2 Over 52.5%, and up to 53.0%

301.2.1 First Offence (at a meeting) – Loss of all points and prize money due on the day up to the point at which the infringement was detected. A final warning will be issued along with an entry made in the driver's log-book. The infraction MUST be corrected before the driver's next race. Subsequent points and prize money earned following correction of the infringement will not be affected.

301.2.2 Second Offence (at a meeting) – Loss of all points and prize money due on the day. Immediate 1-month suspension from racing, including the remainder of the meeting.

301.3 Over 53%

301.3.1 First Offence (at a meeting) – Loss of all points and prize money due on the day. Immediate 1-month suspension from racing, including the remainder of the meeting.

301.3.2 Second Offence (during a season) – Loss of all points and prize money due on the day. Immediate 2-month suspension from racing. Referral to the disciplinary committee for possible additional sanctions.

302 Track Width

302.1 Any failure MUST be corrected before the driver is allowed to race.

302.2 Pre-meeting or pre-race failures are not liable to penalties, subject to subsequent correction prior to racing.

302.3 Post-race failure will result in disqualification and the loss of points / prize money from that race only.

303 Tyres

303.1 Avon Wide Safety GT 7.3x13 – Hardness

- First offence – Exclusion from the meeting, and loss of points.
- Second offence – 1-month ban from racing.
- Further offences – Referral to the disciplinary committee.
- Tyre infringements will not be transferred from season to season, but a driver found in contravention of this rule is not permitted to race again within the following 24 hour period.

303.2 Yokohama – Softener/Modification

"185/70R13 – A021R" (A021R, Pre-2015 labelling)
"170/590R13 – A021R" (A021R, 2015-on labelling)
"175R13C – 8PR 97/95P – Delivery Star RY818"

- The detected use of any tyre softener, **chemical treatment, contaminant, and/or unauthorised modification, of any Yokohama tyre,** will result in an automatic 12-month ban from racing with immediate effect.

304 *Pinto Engine*

304.1 ***Rev. Limiter – Any driver refusing a mandated swap of a rev. limiter, with either another driver or with one from stock, as directed by a BriSCA F2 official, will receive an immediate racing ban of 12 months.***

304.2 ***Rev. Limiter – Any driver refusing to surrender their rev. limiter for a mandated test/check, as directed by a BriSCA F2 official, will receive an immediate racing ban of 12 months.***

304.3 ***Rev. Limiter – Any driver found to have tampered with a rev. limiter, or be using a rev. limiter that has been tampered with, will receive an immediate racing ban of 12 months.***

304.4 ***Rev. Limiter – Any driver found to have disconnected the rev. limiter, or be racing without one, will receive an immediate racing ban of 12 months.***

305 *Duratec Engine*

305.1 ***ECU – Any driver refusing a mandated swap of an ECU, with either another driver or with one from stock, as directed by a BriSCA F2 official, will receive an immediate racing ban of 12 months.***

305.2 ***ECU – Any driver refusing to surrender their ECU, for a mandated test/check, as directed by a BriSCA F2 official, will receive an immediate racing ban of 12 months.***

305.3 ***ECU – Any driver found to have tampered with an ECU, or be using an ECU that has been tampered with, will receive an immediate racing ban of 12 months.***

306 Zetec Engine

306.1 ***ECU –*** Any driver refusing a mandated swap of an ECU, with either another driver or with one from stock, as directed by a BriSCA F2 official, will receive an immediate ***racing*** ban of 12 months.

306.2 ***ECU – Any driver refusing to surrender their ECU, for a mandated test/check, as directed by a BriSCA F2 official, will receive an immediate racing ban of 12 months.***

306.3 ***ECU –*** Any driver found to have tampered with an ECU, or be using an ECU that has been tampered with, will receive an immediate ***racing*** ban of 12 months.

307 Grading Colours / Roof Painting / Lights

307.1 Any driver appearing with the wrong roof colour***, or without the required flashing superstar lights,*** will be made to start at the rear of the grid in all races until the ***issue*** is rectified to the satisfaction of the Steward / Scrutineer / Clerk of the Course.

307.2 ***Any driver persistently appearing with the wrong roof colour, or without the required flashing Superstar lights, will forfeit any points otherwise due.***

308 Inspection Refusal

308.1 Any driver refusing technical inspection of their car or engine, or refusing to surrender one or more parts upon a reasonable request for inspection by the scrutineer or BriSCA F2 appointed official, will receive the standard ORCi 12-month ban from racing with immediate effect.

309 *In-Race Technical Disqualification*

309.1 ***If a car becomes unsafe, or a danger to other competitors, officials, spectators, or the environment (e.g. noise or track damage) during the course of a race, then the driver will be shown the technical disqualification flag (white flag with a diagonal red cross) and will be disqualified from the race.***

309.2 ***If shown the technical disqualification flag, the driver MUST retire to the infield at the earliest safe opportunity.***

309.3 ***Examples of issues that will result in a technical disqualification include, but are not limited to:***

- ***A broken or loose wheel-guard***
- ***Bodywork hanging off***
- ***A loose aerofoil/wing***
- ***A broken/dislodged exhaust pipe or silencer***
- ***Fire***

309.4 ***Any driver ignoring the technical disqualification flag will be shown the black flag and will be subject to further disciplinary action from the Steward of the meeting.***

310 Other Infringements

310.1 Penalties for other technical infringements will be decided***, if appropriate,*** by the Steward of the meeting, or ***otherwise*** referred to ***BriSCA F2*** for further consideration.

CHAPTER 14

2018 TEMPORARY LICENCE RULES

401 Temporary Licences

401.1 A Temporary Licence is available in the following circumstances:
- For potential new BriSCA F2 drivers wishing to "try before they buy"
- For one-off "guest" drivers

401.2 A Temporary Licence is valid for a MAXIMUM of three meetings. After this time the holder MUST upgrade to a Full Licence if they wish to continue racing.

401.3 A Temporary Licence costs £60.

401.4 A Temporary Licence is NOT a cheap alternative to a Full BriSCA F2 Licence.

401.5 The following racing conditions apply to the holder of a Temporary Licence:

401.5.1 The holder is NOT eligible to compete at meetings that include a championship event.

401.5.2 The holder MUST start all their races from the back of the grid.

401.5.3 The holder is NOT eligible to score any points.

401.5.4 The holder is NOT eligible to receive any prize-money.

401.5.5 The holder is NOT eligible to receive any trophies.

401.5.6 The holder will be EXCLUDED from all published results.

401.5.7 The holder is NOT entitled to hold any specific grade.

401.5.8 The holder is NOT permitted to race in a meeting Final where drivers must qualify for such a race (e.g. meetings following the traditional heats/consolation format).

401.5.9 The holder is NOT permitted to compete in a race where a specific limit has been placed on the number of cars taking part if, by doing so, the holder of a Full Licence would be excluded from the race.

401.6 The following non-racing conditions apply to the holder of a Temporary Licence:

401.6.1 The holder is NOT entitled to receive an Unloaded 7.3 magazine subscription.

401.6.2 The holder is NOT entitled to vote in any driver referendums/voting processes.

401.6.3 The holder IS entitled to submit a claim to the BriSCA F2 Drivers Benevolent Fund subject to the normal rules of the scheme.

401.7 The holder of a Temporary Licence remains eligible to compete in a subsequent "Novice of the Year" (NOY) competition provided that ALL the following conditions are met:
- He/she races under a Full Licence in the year of the NOY competition.
- He/she has NOT held more than one Temporary Licence prior to registering for a Full Licence.
- He/she meets all other specified criteria of the NOY competition.

401.8 NOY competition points may only be accrued from the point at which a Full Licence is taken out (if a holder upgrades to a Full Licence during a season).

401.9 Previous results, while racing under a Temporary Licence, will NOT be converted in to NOY competition points (if a holder upgrades to a Full Licence during a season).

CHAPTER 15

2018 SAFETY EQUIPMENT SPECIFICATION RULES

Text highlighted in bold, red, italics, indicates a change from the previous version of this document.

Definitions used in these Rules

FHR	Frontal Head Restraint (including HANS, Hutchens, Defender and similar type devices)
BORSE	British Oval Racing Safety Executive
Junior Drivers	Drivers aged 15 and under

General Notes

- It is the competitor's responsibility to ensure that they and their team comply with all safety specification rules **at all times** (including scrutineering, practise, and racing).
- Any necessary safety equipment specification rule changes during the course of a season will be notified to competitors through the official ORCi / WatchItRaceIt website (orci.co.uk / watchitraceit.co.uk), and individual formulas' own approved communication channels. Change advisories received from any other source should be checked against these official sources for authenticity and accuracy.
- Proposals for any change(s) to the safety equipment specifications MUST be submitted in writing to the ORCi through one of the following channels:
  - Mail: ORCi, PO Box 9889, Birmingham, B43 6WA
  - Web: Use the online contact form at http://orci.co.uk
  - Email: safety.rules@orci.co.uk
- Proposed changes will be considered by BORSE and an official response duly made as appropriate.
- Competitors must NOT use unapproved items, or make modifications to existing items, that do not meet the current safety equipment specifications, whether they believe they have a case for them or not. A process for approval exists and should be followed by all competitors.

900 General

900.1 All safety equipment specification rules apply to all competitors in all ORCi and ORCi affiliated formulas unless otherwise stated.

900.2 All safety equipment must be worn/engaged at all times when on track during racing, practise or test sessions, and at ANY other time when moving at a speed greater than walking pace (4mph).

900.3 Clothing that does not conform to the standards below may only be worn underneath the mandated safety equipment. For example, hooded tops must only be worn underneath a race-suit/overall, and the hood MUST be tucked inside.

901 Helmets and Goggles/Visors

901.1 Helmets

901.1.1 A helmet conforming to at least one of the approved standards MUST be worn.

901.1.2 Helmets MUST meet or exceed the MINIMUM standard as directed by BORSE.

The current approved standards permitted for all drivers are:

- FIA 8860-2004
- FIA 8860-2010
- FIA 8859-2015
- Snell SA2005 (***The continued use of this standard will be reviewed for 2019***)
- Snell SA2010
- Snell SAH2010
- Snell SA2015
- Snell EA2016
- SFI Foundation 31.1A
- SFI Foundation 31.2A
- SFI Foundation 31.1
- ECE R22.05 (in Fibreglass, Carbon or Tri-Composite form ONLY)

The following approved standards are permitted for Junior drivers only in addition to those above:

- Snell CMR 2007
- Snell CMS 2007
- Snell CMR 2016
- Snell CMS 2016
- SFI 24.1

901.1.3 The use of polycarbonate helmets is NOT permitted.

901.1.4 The helmet MUST fit the competitor correctly, according to the manufacturer's sizing/fitting guidelines.

901.1.5 All helmets MUST display the current "ORCi Approved" helmet sticker.

901.2 Goggles/Visors

901.2.1 Shatterproof goggles or a shatterproof visor MUST be worn with the helmet at all times.

901.2.2 The use of tinted visors is NOT advisable.

902 Clothing

902.1 Race-Suits/Overalls

902.1.1 A flame resistant race-suit/overall MUST be worn.

902.1.2 Flame resistant race-suits/overalls MUST be manufactured from Proban, or material of a higher specification, e.g. Nomex.

902.1.3 Flame resistant race-suits/overalls MUST be clearly marked with the relevant SFI, FIA or equivalent standard, or the manufacturer's statement of protection.

902.1.4 Race-suits/overalls MUST be maintained in a clean and tidy condition.

902.1.5 Race-suits/overalls manufactured/certified to Karting standards, including, but not limited to, the CIK-FIA Level 1 or Level 2 standards, are NOT permitted as they do NOT provide the appropriate level of heat/flame protection.

902.2 Gloves

902.2.1 Flame resistant gloves MUST be worn.

902.2.2 Flame resistant gloves MUST be clearly marked with the relevant SFI, FIA or equivalent standard, or the manufacturer's statement of protection.

902.3 Balaclavas

902.3.1 A flame resistant balaclava MUST be worn.

902.3.2 Flame resistant balaclavas MUST be clearly marked with the relevant SFI, FIA or equivalent standard, or the manufacturer's statement of protection.

902.4 Undergarments

902.4.1 Flame resistant socks and undergarments provide a high degree of protection and are highly recommended to all competitors.

902.5 Wet-Weather Protection

902.5.1 Any wet-weather clothing must be worn in ADDITION to the required flame resistant race-suit/overall specified above.

903 Head/Neck Restraint

903.1 All Junior Formulas (Competitors Under The Age Of 16)

903.1.1 An FHR or neck-brace MUST be worn.

903.1.2 If a neck-brace is used, it MUST be of the complete-circle type, i.e. it must form a complete circle around the competitor's neck with no gaps.

903.1.3 The use of "U" shaped, or "horseshoe" neck-braces is NOT permitted.

903.2 ORCi Saloon Stock Cars, Lightning Rods And Stock Rods

903.2.1 The use of an FHR or neck-brace is recommended.

903.3 Other Formulas

903.3.1 The use of an FHR or neck-brace MUST be in accordance with the rules laid down by the governing body for each formula, e.g. BriSCA F1, NHRPA, Stoxkarts Ltd., Spedeworth, etc.

903.3.2 Where no specific FHR/neck-brace rules exist for each formula, the use of an FHR or neck-brace is recommended.

904 Safety Harness

904.1 Usage

904.1.1 A full safety harness MUST be used in accordance with the specifications below.

904.1.2 All mandated straps MUST be used at all times.

904.2 Type And Design

904.2.1 **ALL Formulas, EXCEPT Banger Type Formulas –** the harness MUST comprise of a MINIMUM of 2 shoulder straps, 2 lap straps, and an anti-submarine strap (also referred to as a sub-strap, or crotch-strap) in a MINIMUM 5-point design.

904.2.2 **Banger Type Formulas ONLY –** The use of a sub-strap in Banger type formulas is not recommended, and therefore in Banger type formulas the harness MUST comprise of a MINIMUM of 2 shoulder straps and 2 lap straps in a MINIMUM 4-point design.

904.2.3 Shoulder straps with a sternum protection latch are highly recommended.

904.2.4 The harness MUST incorporate a quick-release buckle (including rotary buckles, and NASCAR lever-latch type buckles), to which all straps MUST be connected.

904.2.5 Where a NASCAR lever-latch type buckle is used, it is advisable to fit a method of protection to prevent race-suit/overall sleeves from accidentally unhooking the buckle during racing. A small section of "Tubegrip" elasticated bandage, slid over the hooked buckle is sufficient for this purpose.

904.3 Harness Strap Width – ALL Adult Formulas (Competitors Aged 16 And Over)

904.3.1 **All Harnesses *(Unless Specified Below)* –** The shoulder and lap/pelvic straps of ALL harnesses MUST measure at least a MINIMUM of 3in/75mm in width, unless explicitly stated below). This applies to, but is not limited to:

- ALL non-homologated harnesses
- ALL harnesses with NASCAR lever-latch type buckles
- ALL harnesses homologated to SFI standards
- ALL harnesses homologated to FIA standards that do not meet ALL FIA criteria below

904.3.2 ***FIA Approved Harnesses With Narrower Lap/Pelvic Straps (less than 75mm/3in)* –** The use of narrower lap/pelvic straps is permitted on FIA approved harnesses ONLY. The harness MUST meet ALL the following criteria:

- The harness MUST be certified/homologated to the current FIA standards: 8853/98 or 8853-2016
- The shoulder straps MUST measure at least a MINIMUM of 2.75in/70mm in width (unless used in conjunction with an FHR device – see below).
- The lap/pelvic straps MUST measure at least a MINIMUM of 2in/50mm in width.
- The FIA identification/homologation***/date*** labels MUST be intact and visible to scrutineers on ALL sections of the harness.
- The harness MUST be within its visibly stated validity period.

904.3.3 **ALL Harnesses –** The anti-submarine strap MUST measure at least a MINIMUM of 1¾in /44mm in width on ALL harnesses.

904.3.4 ***ALL Harnesses Used With An FHR Device*** – Where an FHR device is used by a competitor, it is permitted to use shoulder straps that narrow below the minimum specification (stated above) in order to ensure the correct fitment of the harness/FHR device combination. This exception applies to the shoulder straps ONLY. Any such straps MUST be manufactured by a recognised industry supplier AND be specifically designed for use with an FHR device.

904.4 Harness Strap Width – ALL Junior Formulas (*Competitors Under The Age Of 16*)

904.4.1 The shoulder and lap/pelvic straps MUST measure at least a MINIMUM of 2in/50mm in width.

904.4.2 The anti-submarine strap MUST measure at least a MINIMUM of 1¾in /44mm in width.

904.5 Installation

904.5.1 The harness MUST be securely mounted to the floor, roll-cage, and/or chassis of the race car.

904.5.2 Harness manufacturers specify their own installation requirements depending on the design of their harnesses. Therefore, harnesses MUST be installed according to the manufacturer's recommended best practice using only approved mounting components/ methods.

904.5.3 All the major manufacturers have installation information on their websites, and competitors are advised to refer to this when fitting harnesses to their racecars. Useful websites include (addresses correct at time of publication):

Manufacturer's Websites

- www.willans.com
- www.schrothracing.com
- www.trs-motorsport.com
- www.racequip.com

Safety Standards

- www.sfifoundation.com
- www.fia.com/homologations

904.5.4 Key general guidelines from manufacturers for the installation of harnesses state that:

- Strap lengths should be kept as short as possible to avoid excessive stretching under impact.
- Shoulder straps should be supported at or just below shoulder level.
- Shoulder straps should be prevented from moving sideways, such that they may drop off a competitor's shoulders under severe impact/stretching.

904.5.5 It is recommended that any seat apertures, through which the straps pass, are lined to prevent chaffing of the straps.

904.6 Condition and Maintenance

904.6.1 Special attention MUST be paid to the condition of straps and fixings once installed.

904.6.2 The harness MUST be maintained according to the manufacturer's recommended best practice, and where possible kept free of dirt, oil and grease that could degrade any materials.

905 Window Nets

905.1 Requirement

905.1.1 A quick-release fabric window net MUST be fitted in the driver's side door window aperture of all saloon car formulas, with the exception of Banger type formulas.

905.2 Specification/Installation

905.2.1 The width of the netting holes must NOT exceed a MAXIMUM size of 3in/75mm wide.

905.2.2 The window net MUST be fitted such that it hangs down level with the steering wheel.

905.2.3 The window net MUST be flexible and easily removable, independent of any movement of the driver's-side door.

906 Fire Extinguishers

906.1 Requirements

906.1.1 A fire extinguisher, meeting the specifications below, MUST be carried in the competitor's tow-vehicle/transporter at all times.

906.1.2 The fire extinguisher MUST be within easy reach of the competitor and team members at all times, especially when re-fuelling the racecar.

906.2 Specification

906.2.1 The fire extinguisher capacity MUST be at least a MINIMUM of 2Kg.

906.2.2 The fire extinguisher MUST be of a dry powder or gas type.

906.2.3 Old type BCF (green) fire extinguishers are NOT permitted.

APPENDIX A

1. RACE POINTS WILL BE AWARDED AS FOLLOWS:

Meeting 1 (full) 2/3 heats, cons, Final, GN.
Heats: 10, 9, 8, 7, 6, 5, 4, 3 (2, 1 if 10 progress to Final)
Cons: 6, 5, 4, 3, 2, 1, 1, 1, 1
Final: 20, 18, 16, 14, 12, 10, 8, 6, 4, 2
GN: 10, 9, 8, 7, 6, 5, 4, 3, 2, 1 50 points maximum.
(Final winner receives double in GN from 1 lap handicap).

Meeting 2 (4 heat) 2 heats, Final, GN.
Heats: 10, 9, 8, 7, 6, 5, 4, 3, 2, 1
Final: 10, 9, 8, 7, 6, 5, 4, 3, 2, 1
GN: 10, 9, 8, 7, 6, 5, 4, 3, 2, 1 50 points maximum.
(Final winner receives double in GN from 1 lap handicap).

Meeting 3 (4/5 races) 3 heats, Final (G.N.).
Drivers race in 2 out of 3 heats as directed.
Heats: 10, 9, 8, 7, 6, 5,4, 3, 2, 1
Final: 10, 9, 8, 7, 6, 5, 4, 3, 2, 1
(GN): 10, 9, 8, 7, 6, 5, 4, 3, 2, 1 50 points maximum.
(Final winner recieves double in GN from 1 lap handicap).

In all cases, the Final winner must take a full lap Handicap if he wishes to compete in the Grand National event, and if he does, he will receive double prize money also. In a meeting consisting of three heats and a consolation, the number of drivers going forward to the Final may be six, seven or eight, at the discretion of the promoter, but in a meeting constituted by only two heats and a consolation, the number of drivers going forward to the Final must be eight minimum.

In Heats and Consolation Races, drivers may gain points only if they qualify directly for the Final (i.e. if only six drivers are entitled to go forward from each heat to the final, then points will not be gained for 7th and 8th place. In all other races, points are always awarded down to 10th place.

No points will be awarded for non-qualifiers events.

Any driver gaining a reserve place in the Final will not be awarded any points, not for any place gained in the Final itself. Prize monies are not affected by these rulings. In the event of a dead heat, the points for the two places are equally divided. In the event of two consolation races being run, where less than the usual number of cars are to qualify, only those drivers qualifying for the Final will be awarded points.

Where a driver qualifies more than once for a Final, then only the points scored at his first attempt will count.
At special race meetings, where there are two or more stages of qualifying for the meeting Final, a special points system will be applied by the Official Grader on receipt of meeting schedules subject to Board approval.

All championship events carry double points, except World, Consolation and Semi Finals.

APPENDIX B

METHOD OF GRADING

All drivers, except first year drivers and those returning to racing after a period of retirement, will commence a new season with a grade determined by their performance in the previous season. Drivers who do not race during a grading period (as defined below) will be considered as retired and when they recommence racing, they will do so at the grade shown on the last grading list on which they appeared ***unless the following sentence applies. A driver who has previously raced in an F2 but has since attained a higher grade in another oval racing formula, will, upon recommencing racing, do so at a grade that reflects his experience in that other formula.***

Any driver licensing with BriSCA F2 for the first time who has had experience in other short circuit formulae, must declare his highest grade held on his Licence Form. He will commence racing at B grade (yellow) unless the Board shall deem another grade appropriate.

Points scored in meetings held outside the dates defined in Regulation 3 are considered 'out of season' meetings and do not count for National Points.

The top 108 drivers are graded as follows, in order of points scored:
Superstars 6, Stars 16, A grade (Blues) 32, B grade (Yellows) 54.
In addition, the World Champion and the National Points champion shall be considered Superstars for as long as they hold either title. Previous World and National Points champions may not be downgraded below Star grade for four years. A World Champion who fails to retain his title must continue to race as a Superstar until the next grading period commences.

If an A, B or C grade driver wins a final, that driver will be upgraded by one grade with effect from the fifth day after the final win. For the remainder of the grading period in which the final was won, plus the whole of the following grading period, the driver shall race at the higher of:

- the grade attained by way of the Official Grading List,
- the grade attained by way of the final win upgrade.

If an A, B or C grade driver wins a second final while still at the lower grade (i.e. before the five day upgrading from winning the first final has taken place), he is still only upgraded by one grade, with effect from the fifth day after winning the first final.

If an A, B or C grade driver is due to be downgraded from the 1st of the following month but he wins a final between the end of the grading period and the 1st of

the following month (i.e. before the downgrading takes effect), his downgrading is nullified and, instead, he will be upgraded by one grade from the grade at which he won the final, with effect from the fifth day after the final win. For the remainder of the grading period in which the final was won, plus the whole of the following grading period, the driver shall race at the higher of:

- the grade attained by way of the Official Grading List,
- the grade attained by way of the final win upgrade.

Star grade drivers who win a final may not be downgraded at the next grading period. In addition, Star grade drivers who are due to be downgraded to blue from the 1st of the following month but who win a final between the end of the grading period and the 1st of the following month, will retain their Star grading for the remainder of the grading period in which the final was won, plus the whole of the calendar month following the end of the grading period in which the final win occurred.

Superstar grade drivers who win a final may, provided all other criteria are satisfied, drop to star grade in the following grading period.

A driver racing as a reserve in the Final (i.e. a non-qualifier who will not be awarded points for any place gained in the Final) will not be subject to the upgrading rule as outlined above should he win the Final.

Grading and Grading Periods

The first grading period of a season runs from the start of the season to 15th April (inclusive), and all points scored during that period count towards the new grading list effective from 1st May. Subsequent grading periods run as follows (all dates are inclusive):

16th April to 20th May,
21st May to 20th June,
21st June to 20th July,
21st July to 20th August,
21st August to 20th September, and
21st September to the second Sunday in November.

Each grading period's total, within a season, is cumulative. Each successive grading list produced becomes effective on the first day of the following month except that where the first day of the month falls in the middle of a racing weekend, the official grader may alter the effective date accordingly. The end of the final grading period of the year will be the second Sunday in November and no points will be awarded for meetings held after this date and before 1st March in the following year unless special sanction has been obtained from the board.

Drivers who attain Superstar grade, on merit, for any three grading periods at any time cannot be downgraded below Star grade for four years.
Drivers who attain Star grade, on merit, for any four grading periods at any time cannot be downgraded below A grade (Blue) for four years.
Drivers who attain A grade (Blue), on merit, at any time cannot be downgraded below B grade (Yellow) for four years.

A driver's grade is held 'on merit' if:
- a) he has scored sufficient points to appear within that grade group on a grading list, or
- b) he is the current World or National Points champion (in which case he holds the grade of Superstar 'on merit' while he holds either title), or
- c) he has won a final, thus (in the case of A, B and C grade drivers) promoting him to that grade on the fifth day after the final win, or (in the case of Star grade drivers) maintaining his Star grade.

In order for a Superstar, Star, A grade (Blue) or B grade (Yellow) driver to be eligible for downgrading in the next grading period, he must race in at least 3 meetings during the current grading period AND (except for the opening grading period in any season, or if a driver is a first year driver in his first month of racing) have raced in at least one meeting in the immediate preceding grading period.

A driver's grade that is retained only because he has raced in insufficient meetings to be downgraded is not considered to be held 'on merit'.

A driver who is suspended from racing during a grading period may not be downgraded, even if he has raced in at least 3 meetings during the grading period. When he returns to racing after his suspension, he will do so at the grade previously held, unless the following paragraph applies.

If a driver who is under suspension at the end of a grading period would have been upgraded had he not been suspended, either:
- a) because (as an A, B or C grade driver) he won a final but was suspended before the five-day upgrading could take effect, or
- b) because his points total was enough to have placed him in a higher grade group on the grading list, he will return to racing after his suspension at the higher grade.

Provided all the above criteria have been satisfied, a driver who gains insufficient points to maintain grade will be downgraded by one grade per grading period.

APPENDIX C

COMPOSITION OF WORLD FINAL EVENTS IS AS FOLLOWS:-

Qualifying Rounds

A driver is entitled to enter World Championship Qualifying Rounds at each stadium should a vacancy be available. Preference in bookings will be given to top grade drivers. A driver may only qualify for the World Final through the system that operates in his country of domicile. An overseas driver may compete at a UK World Championship qualifying round as part of the meeting provided he pays the appropriate supplementary contribution fee. If an overseas driver finishes a race in a points scoring place any points gained will not count towards a place in one of the World semi-finals.

Every effort should be made by the promoter to see that Qualifying rounds consist of a minimum of two Heats, a Consolation and a Final. Grid positions for the Final must be predrawn by the promoter at random, in grades. For qualifying round Finals there is no requirement for Heat and Consolation winners to start at the rear of their grades.

Qualifying Round points are awarded in accordance with Appendix A, except that Grand National, Helter Skelter, All Comers and non-qualifiers events will not score points towards the World Final.

Non-qualifying reserves will not be included in Finals at Qualifying Rounds.

Drivers may attend as many qualifying rounds as they wish (subject to being able to obtain bookings) but only their best five points scores will count towards their qualifying total. In addition, each driver will receive 5 attendance points for each round at which they race. Note that accumulation of attendance points is NOT limited to drivers' best five rounds but covers ALL rounds they race at. In order to receive attendance points a driver must be on track and have taken the green flag in at least one of the qualifying races.

When all the rounds are complete, a table of points will be compiled using the above criteria and the top 56 cars will take part in the Semi Finals.

Semi Finals

Both Semi Finals will take place on the same track on the same day, with drivers allocated in points order between the two alternately. 10 cars will qualify for the World Final from each Semi Final, leaving a balance of 36 cars eligible for the Consolation Semi Final. Reserves who attend the Semi Final meeting and do not get on the grid may race in the Consolation Semi Final from the back of the grid. The Consolation Semi will be formed based on the drivers World Championship Qualifying Round score – highest at the front – followed by the non racing Semi Final reserves as above then 6 cars will qualify from the Consolation Semi Final, with 7th to 10th place men World Final Reserves.

World Final

Pole position for the World final will be determined by the result of the meeting final on Semi Final day. Of the twenty successful semi finalists, the driver achieving the best result in the meeting final will secure pole position for the World Final for the winner of his/her Semi Final. The ten drivers who progressed from that Semi Final to the World Final will therefore grid on the inside line.

The grid will consist of the 20 Semi Final qualifiers, then 6 Consolation Semi Final qualifiers, then reserves, if required, and the World Champion if he has failed to qualify. Overseas drivers will be included on Rows 3, 6, 9 and 12. Any programmed driver that has failed to grid will be replaced by a reserve, but once the green flag has been shown to start the race, no other driver or car will be allowed to take part under any circumstances, and when reserves are used, spaces are not left on the grid. Points awarded are as follows: winner 50, 2nd 48, 3rd 46. The winner shall recieve £1500 minimum prize money made up as the promoter shall think fit. The World Champion may use the number '1' for the term of his reign, but must revert to his previous number immediately after the World Final that he loses that title. At World or Semi Finals, when the grid is formed, and there are drivers missing for any reason, the rows will simply move forward to take up the gaps in the line up.

APPENDIX D

GRAND NATIONAL POINTS CHAMPIONSHIP

QUALIFYING ROUNDS

Qualifying Rounds shall be open to all drivers wishing to compete, subject to local track restrictions limiting the number of cars in any race. The winner of the Final shall be handicapped one full lap, i.e. will start at the front of any 'C' Grade drivers competing.

Qualifying Round points will be awarded 10, 9, 8, 7, 6, 5, 4, 3, 2, 1 to the first ten drivers who finish. The handicapped driver will, however, be awarded DOUBLE POINTS (20, 18, 16, 14, 12, 10, 8, 6, 4, 2) for any place gained in the first ten finishers.

GRAND FINAL

This will be run as per World Final format, where all top qualifiers will take part, highest scorers at the front, with the Championship being one race, within a full meeting.

APPENDIX E

RACE STOPPAGE SUMMARY

Race Duration (Laps)	Laps Completed by Leader (in Brackets)		
30	Complete Re-Run (3)	Re-Start Indian File (23)	Result Stands
25	Complete Re-Run (3)	Re-Start Indian File (19)	Result Stands
20	Complete Re-Run (3)	Re-Start Indian File (15)	Result Stands
16	Complete Re-Run (3)	Re-Start Indian File (12)	Result Stands
12	Complete Re-Run (3)	Re-Start Indian File (9)	Result Stands

APPENDIX F

CHAMPIONSHIP EVENT FORMATS

British Championship

The British Championship shall be run over a number of heats, in which drivers have a minimum of three chances of scoring qualifying points according to the number of drivers booked, with each driver taking part in a proportion of the heats. After the heats, the points scored will be compiled, and the Final will take place with highest scoring drivers at the front of the grid.

European Championship

The first sixteen to twenty drivers will automatically be seeded through to the Championship race. The top six highest points scoring, non qualifying drivers from the Saturday night meeting, up to and including the meeting final, plus all the overseas drivers will have their grid positions decided by random public draw.

Benevolent Fund Trophy

The staging promotion shall publish in advance how many cars will take part in the race and set out to invite the highest graded drivers. The race will grid from the current grading list in reverse order.

English Open Championship

Traditional qualifying procedure for the meeting Final, which is gridded in the reverse averages order, in groups of six.

Formula Two Nationals

The staging promotion shall publish in advance how many cars will take part in the race. Highest graded drivers available from the current Grading List shall take part, and the grid will be by random draw.

Novice of the Year

This season-long competition is open to any driver who is in his or her first season of Formula Two Stock Car racing, and who started their career as a white top. Of the drivers who meet this criteria, the Novice of the Year Champion will be the driver who scores the most National Points in the season.

World of Shale Championship

This contest is open to any driver and Qualifying Rounds will be held at all shale tracks. Priority of bookings in later rounds will be given to drivers who have already accumulated points. A driver may only qualify for the World of Shale final through the system that operates in his country of domicile. An overseas driver may compete at a U.K. World of Shale qualifying round as part of the meeting but if he finishes a race in a points scoring place, any points gained will not count towards a place in the World of Shale final.

When all the qualifying rounds are completed, a table of points will be compiled and the top 20 drivers from that table will be seeded directly to the World of Shale Final. Drivers will grid in the World of Shale Final in points order, with the highest points scorer at the front of the grid. The next available 28 drivers from positions 21 to 60 in the points table will take part in a Last Chance qualifiers race from which the top 6 finishers will be transferred to the World of Shale final. Qualifiers from the Last Chance race will grid in the World of Shale final behind the seeded drivers, in order of their finishing positions in the Last Chance race.

In no circumstances will any driver who finishes below position number 60 in the points table be permitted to take part in the Last Chance qualifiers race.

If any of the top 20 drivers from the final points table fail to take their place in the World of Shale final, additional finishers will be taken from the Last Chance qualifiers race, from seventh place onwards, to bring the total of U.K. mainland registered drivers in the race up to 26. In no circumstances will any driver below position number 20 in the points table be seeded directly to the World of Shale final.

Overseas drivers shall be included on the World of Shale final grid on Rows 3, 6, and 9 (and if 8 or 10 overseas drivers are included – on Rows 12 and 15 as well). Overseas drivers are not permitted to take part in the Last Chance qualifiers race.

The World of Shale final will be held with a parade of qualifiers and there shall be commemorative awards for each qualifier. In addition there will be suitable trophies for the top three drivers in the final points table and four grade awards, one for each of the highest placed white, yellow, blue and red/superstar graded drivers in the final points table. It is a driver's start-of-season grade that determines which grade award he is eligible for. The drivers who finish in the top three places in the final points table are not eligible for any of the grade awards.

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