Technical Car Construction Regulations
Changes for 2019
Additional Information and Clarifications

Version 2.0 (Published) – 6th February

Document compiled on behalf of BriSCA F2 by: **Adrian Blackwell**
BriSCA F2 Chief Technical Consultant

Summary

- Following the publication of the "Technical Car Construction Regulations – Rule Changes for 2019" document, a number of questions, clarifications, and additional observations have been raised by drivers, constructors and officials.
- Where necessary, feedback and questions were passed to the promoters group for discussion at their recent BriSCA F2 meeting, and appropriate responses were subsequently issued.
- This document contains the responses from BriSCA F2, additional information, and further clarification on the questions asked, as well as the regulation changes previously announced.
- The document is colour coded with previously published text in **black** and additional new information in **red**.
- This document is divided in to **6** primary sections:
    1. Changes previously agreed, and already documented in the 2018 Technical Car Construction Regulations
    2. Changes agreed between BriSCA F2 and the BDF for implementation in 2019
    3. Minor changes to existing regulations for clarification, housekeeping, or the prevention of future undesirable development
    4. Confirmation of proposals that are NOT being implemented – For information only.
    5. Information on the medium-term future direction of regulation changes
    6. **Additional information / answers to questions**
- Any further feedback should be directed to the following:
    - Individual BDF members
    - The BDF group via the contact section of the BriSCA F2 website:
      http://www.briscaf2.com/information/contact-drivers-forum.ashx
    - Adrian Blackwell, BriSCA F2 Chief Technical Consultant, directly, or via email to:
      BriSCAF2Tech@outlook.com

1 Previously Agreed Changes

The changes document in this section were agreed in 2017, and published in the 2018 BriSCA F2 Technical Car Construction Regulations rulebook. These are NOT new changes that have not been previously communicated.

Weight and Ballast

- *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.*

- *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.*

  UPDATE: The stacking of more than two lengths of tube together, thus forming a "wall", is not permitted (unless expressly required, e.g. in the construction of nerf rail and bumper blades). Where multiple lengths of tube are being used together in car construction, e.g. a protective frame, then a minimum gap between tubes equal to twice the larger width/diameter of the tube being used must be maintained. E.g. a 50mm gap must be maintained between multiple sections of 25mm CHS, or 100mm between sections of 25x50mm RHS.

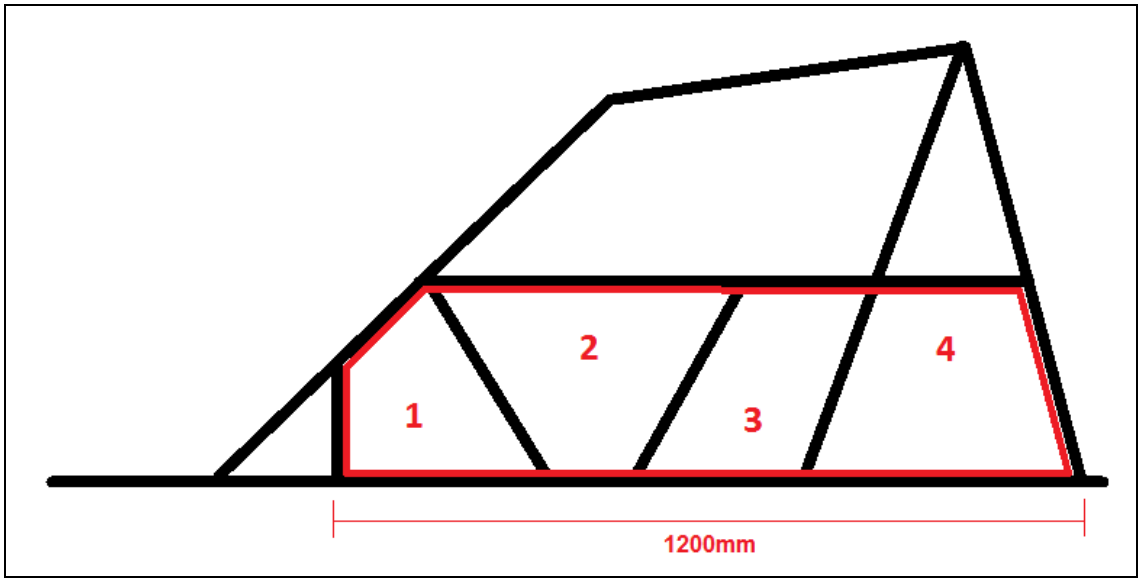
Roll-cage Plating

- *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).*

    ***UPDATE:** At the request of drivers, a maximum number of 4 pieces of plate may be used on each side of the car, 1 per aperture (see updated diagram below). A single piece of plate may cover 1 or more apertures, but multiple plates must not be joined to each other to cover a single aperture.*
  - *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.*

    ***UPDATE:** This measurement will be taken from the rear of the rear roll-cage post, to the front of the foremost tube/post to which the plate is welded. This is therefore not necessarily the actual size of the plate but the length of the solid side including the tube it is welded to (exactly like the measurement of the roof plate).*
  - *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 regulation 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).*
  - ***UPDATE:** It is permitted to cut the side plates around rear shock-absorber mounting brackets, if required. The plates do NOT need to be welded to the brackets. A MAXIMUM 15mm clearance between the plate and mounting bracket is permitted. Where inboard shock-absorbers are installed then the maximum clearance measurement is taken with the "rocker" at its highest point of travel.*

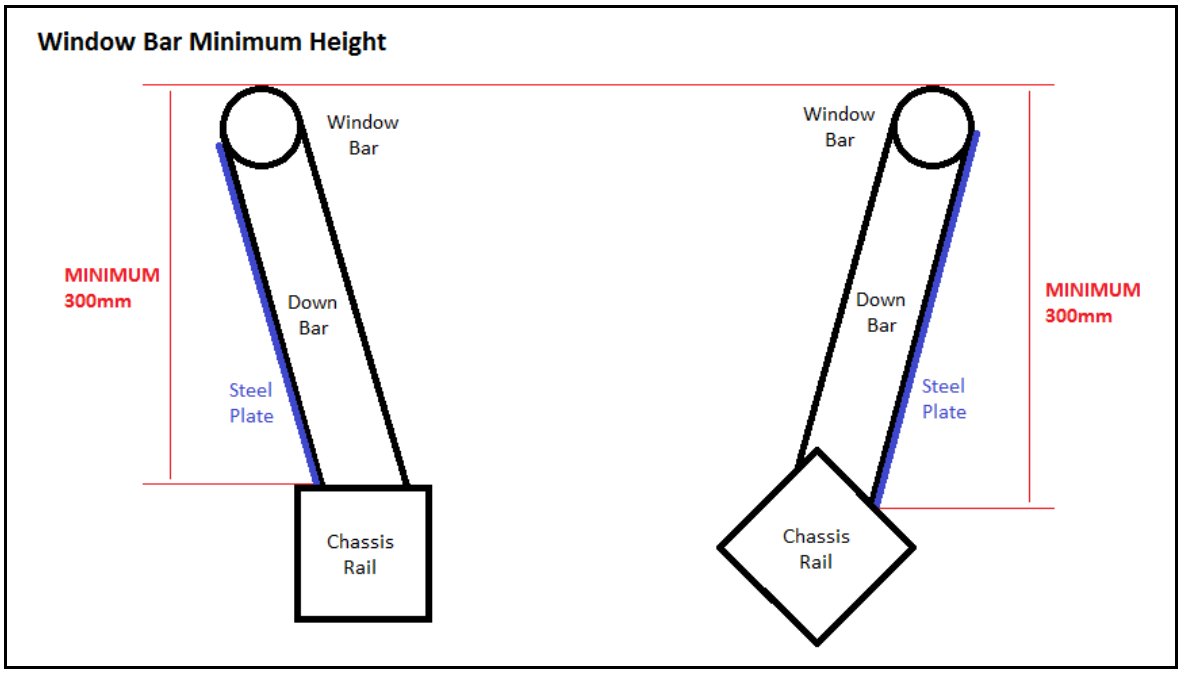
- ***UPDATE:*** *It is permitted to cut a hole in each side plate for the fitment of a rear anti-roll bar if required. The hole on each side of the car must be no larger than a MAXIMUM size of 75mm in diameter, or 75mm square.*
- *See* Technical Diagram 01 *for a visual guide to the above changes.*



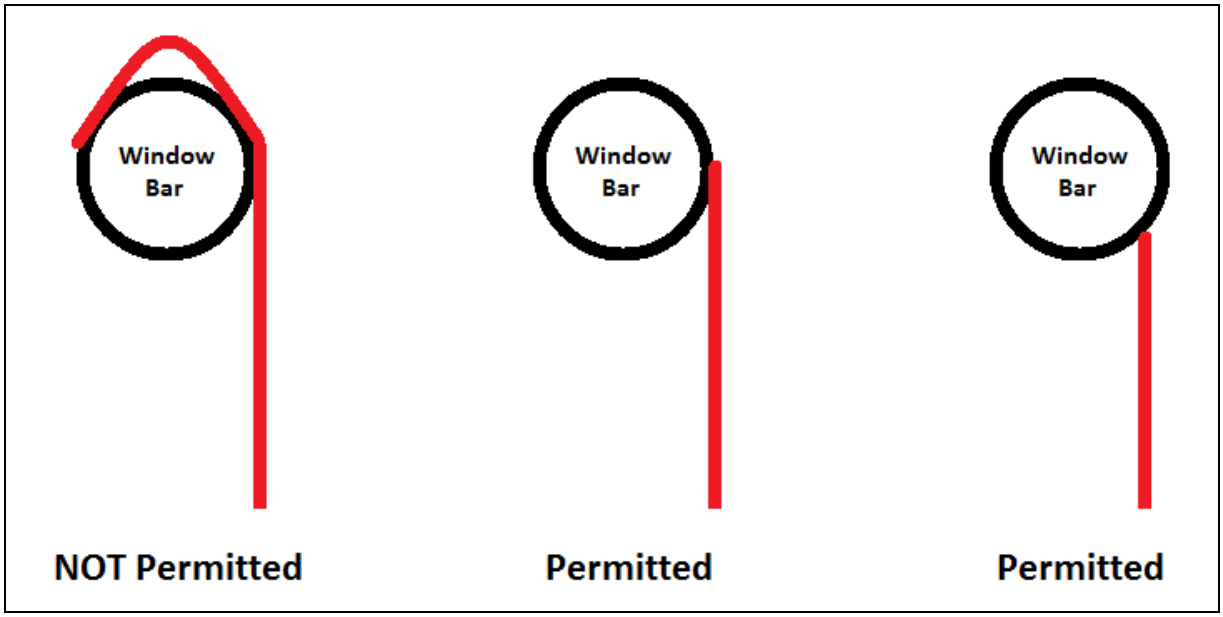
Updated Technical Diagram 01

Window Bar Height

- *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.*
  - *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.*



- **UPDATE:** It is NOT permitted to roll the steel side plate(s) up and over the window bar(s) in order to gain additional height in cars where the window bars are currently installed very low down. The window bars in all cars need to conform to the minimum height in order to provide a minimum level of protection for all drivers. It is understood that this affects very few current cars. (See diagram below)



Floors and Side-Pods

- *The MAXIMUM permitted thickness of the CAB FLOOR will be 4mm.*
- *The MAXIMUM permitted thickness of any other floor section, including any side-pod, will be ~~3mm~~*.* [* see below for minor change]
- *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.* [* see below for minor change]
- *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.*
- The maximum permitted thickness of any floor section, including any side-pod will be 4mm.
- The maximum permitted sump-guard width will be 300mm.
- The maximum permitted thickness of the sump-guard will be 4mm for steel, and 5mm for aluminium.
- The centre of the sump-guard must not be any further left than the centre-line of the engine.
- **UPDATE:** ONLY the floor sections (cab and side pod, in the same horizontal orientation as the chassis rails, bumpers, nerf rails, and roof – regulation 203.1.4), are permitted to be a MAXIMUM of 4mm thick plate. All other plate must be a MAXIMUM of 3mm in thickness. This includes any plate mounted off/up from the side pod floor, such as side-pod walls.
- **UPDATE:** BriSCA F2 have confirmed that, as per the 4th bullet point above, there must be NO floor sections forward of the engine firewall. The maximum width of any steel plate under the engine compartment is 300mm to act as a sump-guard. The installation of any floor sections within the engine compartment to mount shock absorbers, master cylinders, or any other components is not permitted.

Fuel Tank Protection

- *The maximum material thickness will be reducing to 3mm in 2019, in line with general car construction/ballast regulations.*

Exhausts

- *A common set of exhaust regulations will apply to ALL engine types.*
- *These regulations will be based on the existing Zetec engine exhaust regulations for pipe lengths and diameters.*

- **UPDATE:** It is confirmed that the use of interchangeable/removable pipe sections to alter the length of the primary header pipes between the cylinder-head flange and the 4-into-1 collector is NOT permitted. This is covered under existing regulation 223.11 ("*Additional exhaust attachments, tail pipes, and performance altering devices are NOT permitted.*"), and is NOT a change to existing regulations.

- **UPDATE:** Three of the four primary header pipes MUST be constructed as single continuous fully welded pipes from the cylinder head flange to where they meet the 4-into-1 collector. As per current practice, it is permitted for one of the four primary header pipes to be constructed in two joining parts (in some cases this is to aid fitment, in others, to prevent cracking of the pipe at the flange especially on No.1 cylinder).
  It is believed that this requirement does not adversely affect any current cars, however, BriSCA F2, with the backing of the BDF wish to restrict development in this area that is deemed to be at odds with the fundamentals of "stock car racing" and the spirit of the existing regulations.

- **UPDATE:** In addition to the current MAXIMUM 790mm length for each header pipe, the BDF have requested that BriSCA F2 set a MINIMUM length of pipe to prevent the purchase and use of multiple sets of different length header pipes tailored to different length tracks.
  - Research will be carried out in the opening weeks of the season to determine the appropriate figure, but it is expected to be approx. 50mm less than the maximum length (i.e. around 740mm).
  - This will be effective for ALL cars from 1st January 2020.

2 Additional (New) Changes

The items in this section are a small number of new regulation changes for 2019 that were not included in the 2018 Technical Car Construction Regulations.

Weight

- The minimum and maximum weight limits will be changed as follows to account for the additional weight added to cars in recent years.
    - The LOWER weight limit will be increased by 10Kg to a MINIMUM of 660Kg.
    - The UPPER weight limit will be increased by 10Kg to a MAXIMUM of 725Kg.

Cab Floor – Length

- A maximum permitted cab floor length of 800mm will be introduced. This is in conjunction with the previously communicated regulation changes regarding plate thicknesses and sizes.

All Engines – Throttle Return Springs

- All throttle mechanisms MUST be fitted with TWO return springs on safety grounds to reduce the likelihood of a stuck throttle.
    - **Note:** The small spring attached to the throttle on the carburettor body does NOT count as one of the two mandated return springs.

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3 Minor Modifications & Clarifications

The following changes are required to clarify, confirm, or restrict further development on existing regulations.

Zetec Engine – Sump Depth

- The regulation regarding the Zetec sump depth will be enhanced to confirm that the minimum depth of 160mm is measured from the lower face of the engine block to the base of the sump.

Zetec Engine – Claimer Regulation

- The claimer regulation for Zetec engines will be re-introduced (after being previously suspended) with more appropriate claim figures. Currently it is expected to be £1,300+vat in the UK, and €1,500+vat in Mainland Europe.

Pinto Engine - Water Pump Pulley

- Pulleys MUST be the original standard type (single V-belt) and size. (Note: there were two sizes originally produced by Ford for the Pinto engine. Either **diameter** is permitted.)
- Modification of original components is NOT permitted.

Pinto Engine - Water Pump Drive Belt Pulley (Crankshaft)

- Pulleys MUST match one of the two sizes (diameter) originally produced by Ford for the Pinto engine, i.e. original Ford specification. Either **diameter** is permitted.

All Engines

- The installation of ANY fittings, wiring, outlets, or any other hardware, to facilitate the use of ANY kind of engine or performance monitoring or alteration system(s), including (but not limited to) lambda sensors, is NOT permitted unless as a mandatory requirement detailed elsewhere in the technical specifications (e.g. the Zetec flywheel sensor).

~~**All Engines**~~

- ~~The painting, coating, or protection of ANY non-ferrous engine component, and ALL inlet manifolds, is NOT permitted.~~

  UPDATE: The wording of this modification/change was incorrectly detailed in the initial document released in October 2018. It is therefore replaced by the following:

  Zetec Engine – Painting/Coatings

  - The painting, coating, or protection of ANY non-ferrous engine component, including the standard BriSCA/SSCA inlet manifold, and either type of camshaft cover (alloy or plastic), is NOT permitted.

  Pinto Engine – Painting/Coatings

  - The painting, coating, or protection of the inlet manifold, is NOT permitted with effect from 1st January 2020.
  - The painting/coating of non-ferrous components on the Pinto engine, e.g. the cover behind the end of the crankshaft, or the distributor body, IS permitted.

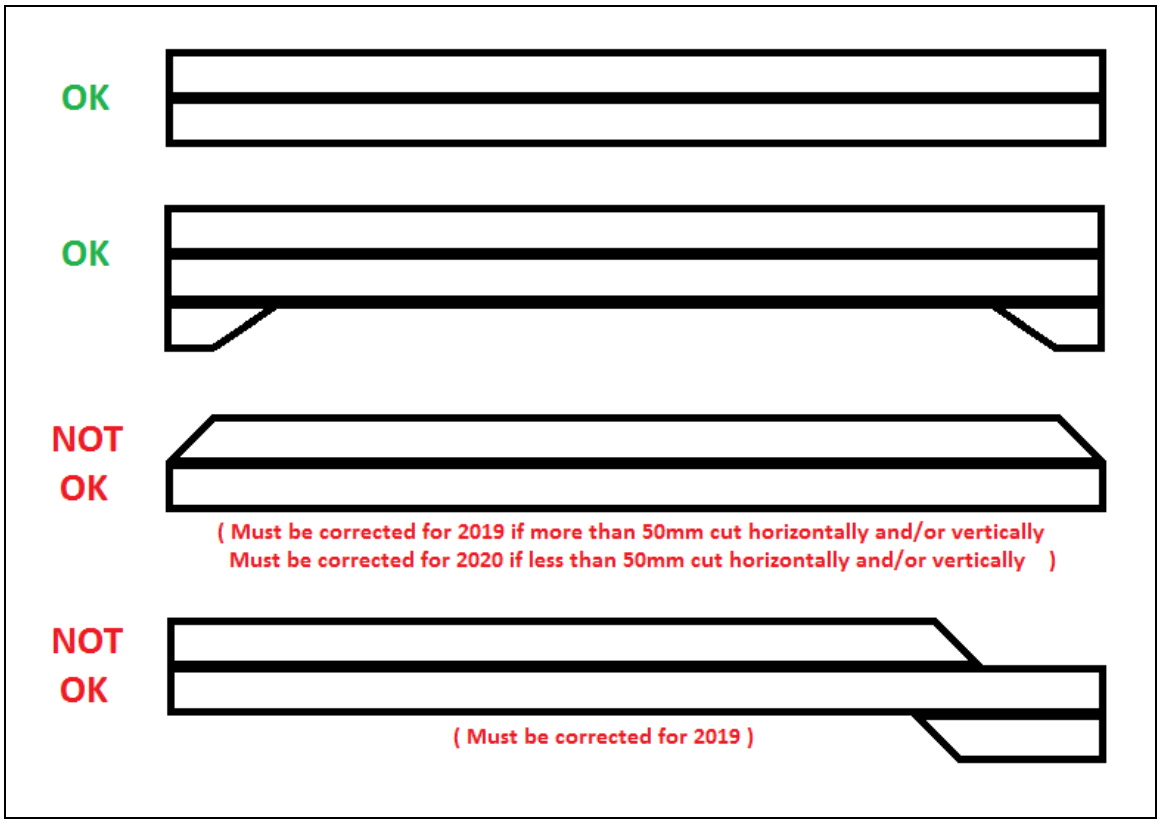
Brakes

- Where a single master cylinder incorporates a bleed-nipple outlet (in addition to the normal brake pipe outlet), this must NOT be used to connect a brake-line. ALL brake-lines MUST be connected to the single brake-pipe outlet.

Rear-Bumper

- The top edge of the rear bumper MUST remain in the same horizontal plane along its entire length. The dropping of the bumper ends is NOT permitted.
- The top edge of the rear bumper blade MUST be parallel to the bottom edge of the rear bumper blade along its entire length, excepting any additional permitted bumper section underneath the blade for the purpose of mounting rear wheel-guards.
- **UPDATE:** The practice of nipping off the top corners on the rear bumper has not been formally requested or approved, and has not been specifically allowed in previous rulebooks, and therefore is not permitted.

- It is recognised that in many cases cars may already have had new bumpers fitted for the 2019 season with some nipping of the corners, or brand new cars may have already been constructed in this manner, despite there being no provision in the regulations.
- Where the nipping is no greater than 50mm in either the horizontal or vertical plane, then a run-out period for such bumpers is given until 1st January 2020.
- Where a bumper has had more than 50mm of material removed in either the horizontal or vertical plane, or indeed has larger sections dropped, then this MUST be rectified for the 2019 season, i.e. from 1st March 2019.
- See diagram below for examples.



Bumpers - Repair

- The use of repair plates (current regulation 204.15) will be restricted to a maximum of 4 such plates per bumper, however, such plates may be used on bumpers made from the traditional 25mm x 50mm RHS, as well as the increasingly common (especially on shale) 30mm x 50mm SHS.
- The restriction that such repair plates must still remain within the maximum 30mm thickness, thus effectively preventing 30mm bumpers from being repaired, will be removed.

Nerf Rails

- It will be clarified that the requirement for nerf rails to be symmetrical in appearance when viewed from above includes both the design, and the material specification. E.g. a 25mm O.D. brace on one side must be mirrored by a 25mm O.D. brace on the other.

Rear Axle - Clearance

- Clarity will be added that the existing axle clearance regulation refers to the car and axle in any orientation or position, NOT just sitting the chassis on the floor when the shock absorbers are disconnected.

Batteries

- Where two batteries are fitted, BOTH batteries MUST be used in powering and running the car.
- The use of a 2nd battery purely for ballast purposes is NOT permitted.

Undercarriage – Definition

- A clearer definition of the “space-frame undercarriage” of the car will be given. The undercarriage must be constructed from hollow section (CHS, SHS, RHS, OHS) with metal panel-work as required. The construction of the undercarriage from steel plate is not permitted.

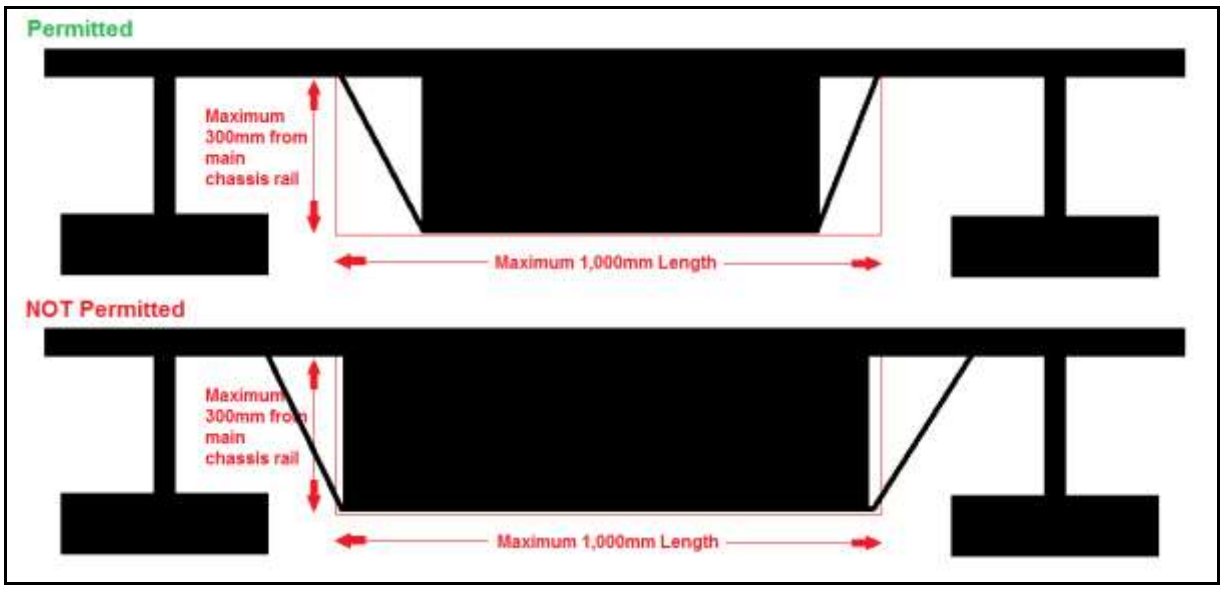
- **UPDATE:** Further to the clearer definition of the undercarriage, it is further clarified that…
  - The construction of offset, inset, outset, or other non-symmetrical designs of undercarriage are not permitted.
  - The undercarriage must be symmetrical about the centre-line of the car when viewed from the front and rear, with any lower rails and floor sections being equal in depth from the main chassis rails.
  - **It is believed that this requirement does not adversely affect any current cars**, however, BriSCA F2 wish to restrict proposed development in this area that is deemed to be at odds with the fundamentals of "stock car racing" and the spirit of the existing regulations.

Side-Pod – Definition

- A clearer definition of the "side-pod" will be given, clarifying for drivers and constructors which parts of the design are subject to the current specifications.
- It has been agreed by BriSCA F2 and the BDF that all bracing and framework in the side-pod construction, that does not connect directly to either the main chassis rail, or the nerf rail, must be contained with the maximum 1,000mm x 300mm footprint. Appropriate diagrams will be produced and published.

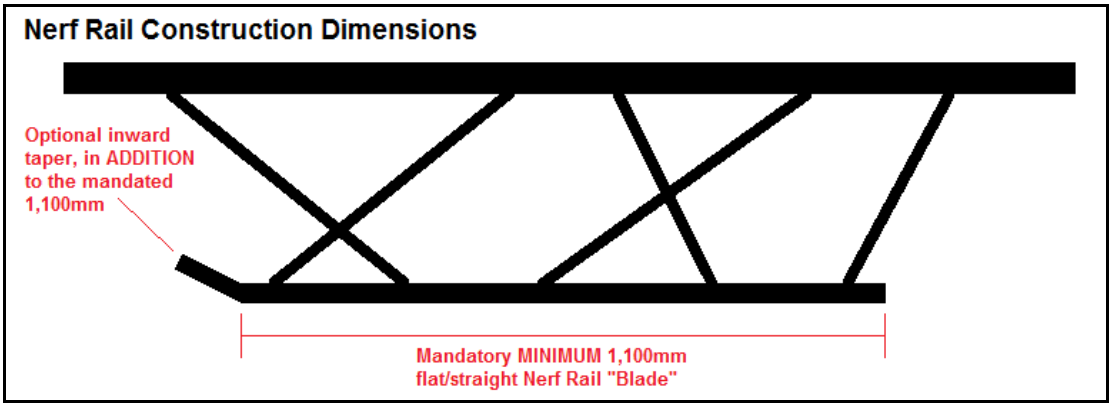
Side-Pod – Footprint

- It is clarified that the side pod, including any bracing back to any part of the lower chassis undercarriage (i.e. below the main chassis rails MUST be within the permitted MAXIMUM 300mm x 1,000mm "box". Bracing from the side-pod up to the main chassis rail, and/or nerf rail, may extend outside of the 300mm x 1000mm box.



Nerf Rails – Tapering

- The tapering-in of the front ends of the nerf rail blades, to prevent hooking up on fence-posts or other cars, will be expressly permitted as this is seen as a benefit to drivers in terms of avoiding damage and thus reducing cost.



4 Non-Implemented Proposed Changes

A number of potential change proposals were put forward for consideration, which, following constructive discussion between BriSCA F2 promoters and the BDF representatives, are NOT being implemented.

This section simply confirms, for drivers' peace of mind, those contentious items that are NOT being changed.

Elite Transmissions

- There are NO changes to the technical specifications that would outlaw Elite transmissions in 2019.
- There are NO restrictions on the rear axle differential ratios that may be used in conjunction with an Elite transmission in 2019.
- There are NO restrictions on the specific drop-gears that may be used in an Elite transmission in 2019.

Brakes

- There are NO changes to restrict the type(s) of brake caliper used on each corner of the car in 2019.
- There are NO changes to mandate the use of 4 brake calipers in 2019.
- There are NO changes to reintroduce multiple master cylinders in braking systems in 2019.
- There are NO changes to restrict the type(s) of brake pads used on each corner of the car in 2019.

Tyres

- There are NO changes (to the published technical specification) to restrict the number of tyres permitted for use at a meeting.
    - Note: Further experimental one-off restrictions, such as that carried out by Autospeed at their 2018 Good-Friday Northampton meeting, may be undertaken.
- There are NO changes to the number or location of required Delivery Star RY818 tyres on the car for 2019.
    - The current regulation requiring a single Delivery Star RY818 to be used on the right rear wheel (off-side rear), as currently implemented, remains in place.

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5 Future Direction

Stability

- BriSCA F2 and the BDF driver representatives have a strong desire to maintain a period of stability going forward.
- It is intended that the announced regulation changes for 2019 continue unchanged in to 2020 with the following exceptions:
    1. Tyre changes as a result of tyre testing (see below)
    2. A potential review of braking systems (see below)
    3. Necessary specific BriSCA F2 safety-related changes
    4. ORCi mandated safety-related changes

Tyres

- As detailed above, the current 2018 tyre regulations remain in place and unchanged for 2019.

- BriSCA F2 now intend to immediately embark on a tyre testing programme with a view to replacing the current A021R and RY818 tyres for the 2020 season and beyond with 4 common tyres appropriate to the sport of contact stock car racing.

- In order to properly evaluate potential replacement tyres, a number of assessment criteria will be required.
- Initial thoughts on such criteria include, but are not limited to:
    - Cost – The chosen tyre must be cheaper than the Delivery Star RY818 to purchase
    - Cost – The chosen tyre must have sufficient wear rate to result in a lower overall cost to drivers
    - Performance – The chosen tyre must result in an overall lowering of racing speeds
    - Availability – The chosen tyre must be readily available

- The involvement of the BDF and individual drivers will be vital in this process; in defining the evaluation criteria, carrying out on-track testing, and reviewing the tested products against the evaluation criteria.
- Clearly, measures will need to be put in place to ensure that drivers taking part in testing are not disadvantaged by doing so, nor do they gain any unfair advantage.
- BriSCA F2 will now look to work closely with the BDF, potentially forming a Tyre Testing Working Group to manage the process.
- **UPDATE:** Ian Thompson (Sr.), promoter at Nutts Corner, will be heading up the Tyre Testing programme.

Rev Limiters

- ~~BriSCA F2 will be introducing the Rev. Limiter for the 2.0 litre Pinto engine as mandatory from 1st March 2019, however this process is currently held up while BriSCA F2/OMEX wait on a number of drivers to send requested components to them (as has been promised) to facilitate the next stage of testing.~~
- ~~With the exception of one unit, all other Rev. Limiters returned to OMEX for testing so far have been proven to not be at fault, with any issues experienced lying with wiring or other components.~~
- **UPDATE:** Separate information has been published by BriSCA F2 in relation to the Rev. Limiter testing and mandatory use with effect from 1st March 2019.

Brakes

- It is the intention of BriSCA F2 to review all elements of the braking system for 2020 and beyond.
- BriSCA F2 wish to undertake detailed analysis of this, in conjunction with drivers and car-constructors, and agree any brake system changes by mid-season 2019.
- Comment will therefore be invited in due course.

6 Additional Information / Answers to Questions Raised

Chassis – Design/Specification

- Following on from the updated undercarriage regulations (see above) BriSCA F2 wish to add further clarification of the spirit of the main chassis regulations with the following:
  - The chassis must be constructed with two **separate** main chassis rails running longitudinally from the front to the rear of the car.
  - The main chassis rails must be AT LEAST a MINIMUM of 450mm apart at ALL points along their length.
  - A maximum of 2 bends in the horizontal plane, and 2 bends in the vertical plane are permitted in each chassis rail to allow for current accepted chassis designs such as a raised main rail, a diamond chassis, or a wider cab.
- **It is believed that this requirement does not affect any current cars,** however, BriSCA F2 wish to restrict proposed development in an area that is deemed to be at odds with the fundamentals of "stock car racing" and the spirit of the regulations. If there is any uncertainty with any current car, drivers should contact BriSCA F2 for guidance.

Roll-Cage – Design/Specification

- **There are no changes to the roll-cage specifications**, either in material sizes, design, or location/placement of required bars and plate.

Roll-Cage – Rear Plate

- **There is NO change to the measurement of the rear plate in the roll cage**. This remains that the plate itself must measure a minimum of 300mm in height, as per 2018 regulation 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."

Wings (Aerofoils) - Clarification

- Wings/Aerofoils are classified as one of three permitted types:
  - (1) **Sectional wing** with a centre-section and two side plates (commonly a curved centre aero section with attached side plates, and used on both hard and loose surfaces)
  - (2) **Folded wing** with a centre-section and side plates constructed over a frame (commonly a single folded sheet in a stretched "N" pattern, and used on loose surfaces)
  - (3) **Spoiler wing** with a wide but shallow centre-section and two side plates (commonly a curved centre aero centre with attached small side plates, commonly referred to as a "Superstox" style wing)
- Sectional and Folded wings (type 1 & 2) must be mounted above the roofline, and therefore conform to all existing regulations (2018 sections 226.1 and 226.2) – **there is no change to these regulations**.
- Spoiler wings (type 3) may be mounted to the rear of the driver's cab, **or** above the roofline (as per type 1 & 2). Spoiler wings are NOT limited to being mounted only behind the cab. Such wings must conform to all existing mounting regulations (2018 sections 226.3.3 to 226.3.6) – **there is no change to these regulations**.

Ballast

- Regulation 202.2.2, which currently states…
  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.
  …will be updated to reflect the newer maximum 3mm thickness, and to also include restrictions in use elsewhere on the car for items such as radiator mounting frames, fuel-tank strapping, gusseting, etc.
- Brackets and plates for the mounting of steering components, suspension, bolt-on bumpers, shock-absorbers, leaf-springs, engine mounts, and brake cylinders are still permitted to be constructed from plate measuring up to 6mm in thickness.

Radiator

- A minor wording change will be added to confirm that the radiator must be located within the footprint of the main chassis rails, thus confirming the legality of radiators mounted horizontally on top of the chassis rails, as opposed to vertically, to avoid being blocked up by wet shale.

All Engines – Cylinder-head Gaskets – EFFECTIVE 1st JANUARY 2020

- Following extensive research, in conjunction with engine builders, BriSCA F2 will mandate a list of approved cylinder head gaskets for both the Zetec and Pinto engines, **EFFECTIVE 1st JANUARY 2020.**

- A list of approved part numbers, to the original UK specification, from the following six manufacturers will be published: (1) Ford (Original), (2) Victor Reinz, (3) Elring, (4) Goetze, (5) Glaser, (6) Payen.
- No other cylinder head gasket will be permitted.
- In the event of more than half of the approved components becoming unavailable, BriSCA F2 will approve appropriate alternatives.
- All cylinder-head gaskets must retain their original part number. Removal of the part number is NOT permitted.

Pinto Engine – Oil Pump

- The use of high capacity oil pumps will be expressly prohibited from 1st January 2020.
- Following the issues experienced in 2018, a runout period of the 2019 season has been accepted.

Pinto Engine – Inlet Manifold

- It is permitted to block off the water circulation hole on the standard inlet manifold through the use of a putty, sealer, or infill with chemical metal. Welding the manifold is not permitted.
- It is not permitted to weld, or in any other way alter the cylinder head in order to achieve the blocking off of the water circulation to the inlet manifold.

Pinto Engine – Ignition Components

- With the introduction of the mandatory use of the Rev. Limiter for the Pinto engine, and following extensive testing by OMEX (with help from BriSCA F2 drivers), the following changes to the ignition components regulations are required:
- **Distributor**
  - The only permitted distributor is the standard Bosch unit in its electronic form.
  - The points based form of the Bosch distributor is not permitted.
  - The use/fitting of Lumenition devices is NOT permitted.
- **Coil**
  - A traditional standard type “wet” coil must be used, as fitted to the original production cars.
  - The part number must not be removed from the coil (as per current regulation 231.16.6)
  - **FROM 1st JANUARY 2020**, the only permitted coils will be from an approved list to be published by BriSCA F2. Such coils will be commonly available over the counter from parts suppliers nationwide, and be equivalent to Ford’s original specifications.
- **Ignition Amplifier (Black Box)**
  - The only permitted ignition amplifiers are the following original and direct replacement units:
    - Motorcraft The original unit as installed and fitted by Ford
    - Intermotor Direct replacement
    - Lucas Direct replacement
  - Other units have not been tested, and cheap copies may not meet original Ford specifications.

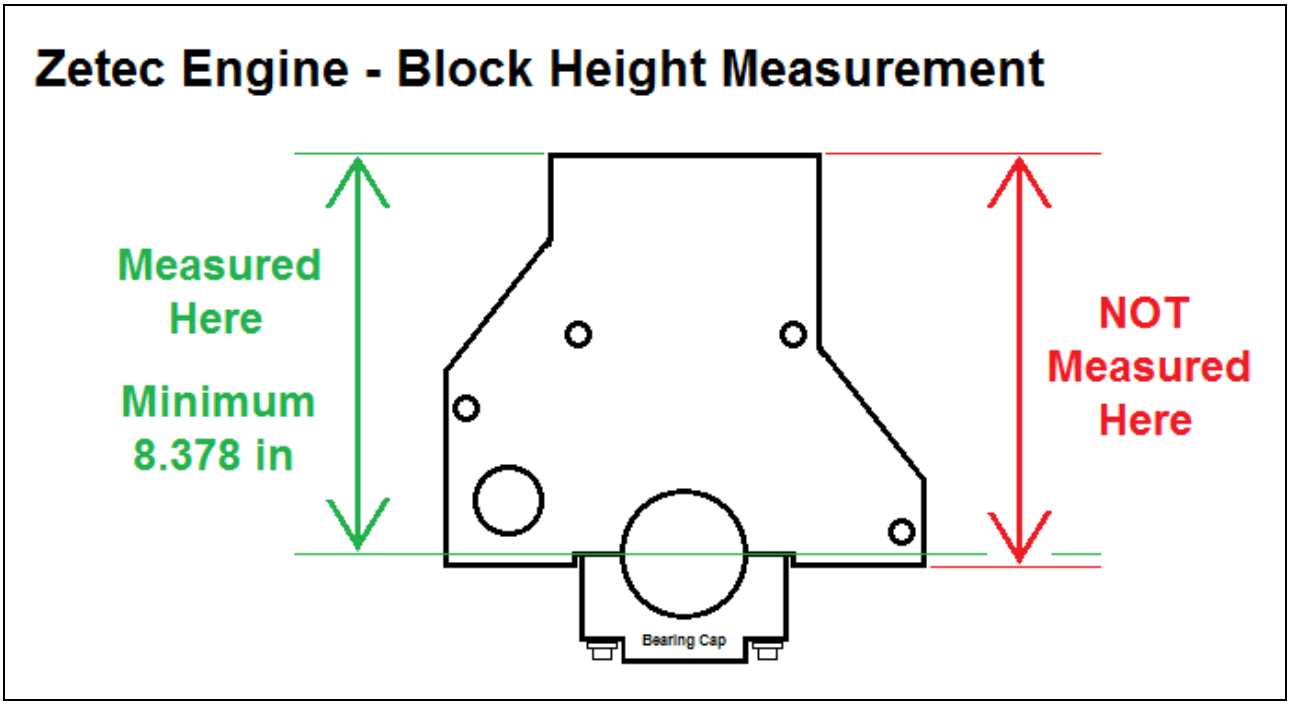
Zetec Engine – Valve-Springs

- Zetec valve-springs must be standard original Ford items from the permitted Zetec engines (as per current regulations).
- BriSCA F2 is aware of some supply issues with original standard Ford valve-springs for the Zetec engine and is therefore currently researching an appropriate alternative aftermarket direct replacement for approval.
- Any potential approved replacement valve-spring will have the same characteristics as the original Ford spring.
  - BriSCA F2 is NOT looking to approve any kind of performance/competition valve-spring that would allow better engine performance, and therefore it is unlikely that replacements would be sourced from traditional performance parts suppliers such as Piper Cams, Kent Cams, or Newman Cams.
- Until such time as a reliable source of consistent standard replacement aftermarket valve-springs is approved, then the ONLY valve-springs permitted are the ORIGINAL Ford items from the permitted Zetec engine types.
- Further details will be published as and when appropriate.

Zetec Engine – Block Height

- The following measurements originate from Ford Motor Company technical data.
- The Zetec engine block height, measured from the lower mating face of the main bearing caps (on the block) to the top face of the cylinder block, MUST match the Ford specification of a MINIMUM of 8.378 inches (212.8mm) in height. (See diagram).
- The use of standard pistons and con-rods, as per the documented regulations, in conjunction with the above cylinder block measurement, results in a minimum clearance from the top of the piston to the top face of the cylinder block, when the piston is at TDC, of 0.018in (0.46mm).

- When checking the piston to block clearance, any engine where the clearance is at least a MINIMUM of 0.018in (0.46mm) will be deemed to be within specification.
- Where the clearance from the top of the piston (at TDC) to the top face of the block is observed to be less than the minimum 0.018in (0.46mm) then removal of the engine will be required in order to accurately check the block height to ensure it conforms with the original Ford specification.

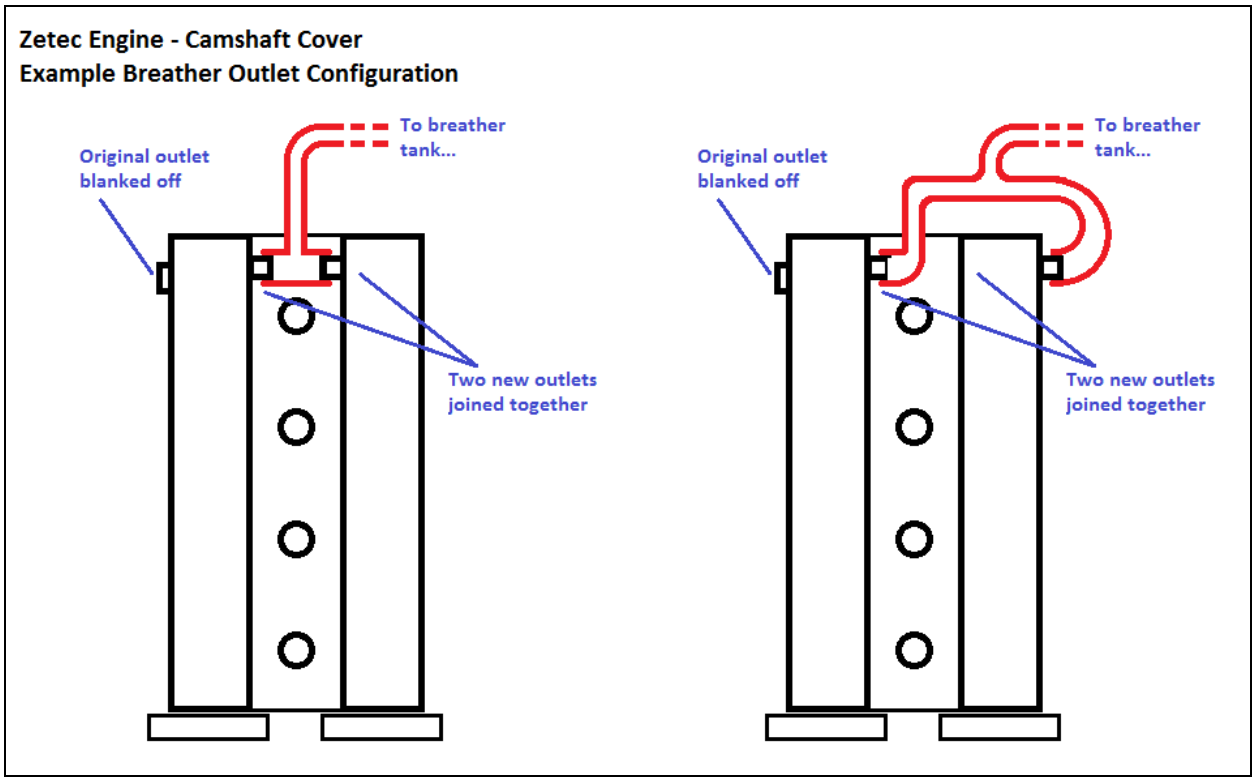


Zetec Engine – Camshaft Timing

- Concerns have been raised over camshafts moving from their standard timing due to the timing pulleys simply being a friction push fit.
- A method of "locking" the timing pulleys to the camshafts has now been approved for use:
  - Locking of timing pulleys to the camshafts is now permitted through the use of grub screws tapped in to the pulleys and the ends of the camshafts.
  - The grub screw(s) must be concealed behind the head of the standard flange-head bolt used to secure the pulley to the camshaft.
  - The standard flange-head bolt used to secure the pulley to the camshaft must be retained.
  - A maximum of 2 tapped holes will be permitted in each timing pulley
  - A maximum of 4 tapped holes will be permitted in the end of each camshaft (to allow for the resetting of the timing to the correct position following any permitted skimming of the cylinder head)

Zetec Engine – Camshaft Cover Breather Outlet (233.24.3)

- Feedback and concerns have been received from drivers/engine-builders regarding the breathing of the Zetec engine and expulsion of oil.
- The fitting of a breather outlet on each half of the camshaft cover, i.e. 1 breather outlet per camshaft, will now be permitted (as opposed to the single outlet currently permitted):
  - Blanking off the original camshaft cover breather outlet on the right (fence) side of the engine, off the inlet camshaft, is permitted.
  - Installing a single alternative breather outlet on the section of camshaft cover over the intake camshaft is permitted.
  - Installing a single breather outlet on the section of camshaft cover over the exhaust camshaft is permitted.
  - Linking together the two permitted camshaft cover breather outlets is permitted.



Zetec Engine – Crankshaft/Con-Rod Bearing Shells

- Standard crankshaft/con-rod bearing shells must be used (with up to a maximum of 0.25mm undersize permitted to allow for a crank regrind), as per current regulations.
- BriSCA F2 is aware of some supply issues with original standard Ford bearing shells, and is therefore currently working on researching an appropriate alternative aftermarket direct replacement for approval.

- Any potential approved replacement bearing shells will have the same characteristics as the original Ford components.
    - BriSCA F2 is NOT looking to approve any kind of performance/competition bearing shells that would allow better engine performance.
- Until such time as a reliable source of consistent standard replacement aftermarket bearing shells is approved, then the ONLY bearing shells permitted are the ORIGINAL Ford items.
- Further details will be published as and when appropriate.

Zetec Engine – Permitted Engine (233.1)

- A minor correction will be made to detail that the permitted Zetec engine type is any of the listed engine codes, which, when fitted in production cars had a maximum power output of 136PS.

Zetec Engine – Cam-Belt Tensioner

- Any fixed replacement cam-belt tensioner, as permitted under regulation 233.14.12, must be the same size as the original Ford spring-loaded item.
- The mounting of any cam-belt tensioner must be as per the original Ford installation. The use of studs is not permitted, and there is no provision for such in current regulations.

Zetec Engine – Valve Guide Replacement

- The replacement of Zetec engine valve guides is NOT permitted (as per current regulations).
- There are currently NO plans to change this regulation.

In-Race/Post-Race Actions Affecting Car Legality

- Any deliberate action taken by a driver on track, during or after a race, that affects the ability of any official to check the legality of the car, or attempts to conceal any illegality, will potentially result in disqualification. For example: deliberately impacting an object such as the fence, a marker tyre, or another car, after the chequered flag and bending a wishbone preventing its accurate measurement.