



## Technical Car Construction Regulations Summary of Change Proposals for 2018 and Beyond

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### Summary

- This document contains **proposals** for changes to technical car construction regulations to be considered by BriSCA F2 for the 2018 season and beyond.
  - This document is divided in to 2 primary sections:
    - Proposals for new rules / rule changes for 2018 and beyond
    - Clarifications and tidying-up of existing rules
  - **This document is NOT a list of rule changes for 2018 – NOTHING has been agreed yet.**
  - The list of proposals has NOT been filtered in any way, and therefore contains all proposals submitted by the deadline of July 2017 by Drivers/Teams, the BriSCA F2 Drivers' Forum (BDF), Car Constructors, Engine Builders, BriSCA F2 Promoters, Track Officials, and BriSCA F2 Officials.
  - Proposals have been received from the various parties listed above via race meetings, round-table discussions, general observations, and many useful, open and frank technical conversations held during the course of the season. Such interaction is positively encouraged.
  - **BriSCA F2 now invites constructive feedback from drivers, car constructors, engine builders, promoters, and/or officials on the proposals listed below.**
  - **The DEADLINE for feedback is WEDNESDAY 9<sup>th</sup> AUGUST 2017.**
  - Feedback should be directed to any of 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](mailto:BriSCAF2Tech@outlook.com)
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## **Introduction**

BriSCA F2 Stock Car Racing is at a crossroads in its future direction.

A serious rethink is required to establish the direction in which the sport should be heading and the type of racing it should be serving up to the paying public.

Shale racing is currently in rude health with a buzz around the pits and frequently more drivers wishing to race than can be accommodated. Unfortunately the same cannot be said of tarmac racing in general (making up the majority of the tracks and fixtures) where low car counts and professional racing are resulting in unsustainable decreases in the numbers of spectators coming through the turnstiles.

Tarmac racing frequently appears to come in two extremes. Much of the time the racing is professional with minimal action, where lap times appear to have become more important than Stock Car racing. At the other extreme, and less frequent, the racing is brutal but too ferocious, leading to excessive damage to cars (with high repair costs), and sometimes resulting in driver injury.

The entire car package (chassis, engine, gearbox, tyres, etc.), especially on tarmac, has become too much of a “racing car”, well beyond what a Stock Car should be. A competitive car is out of the financial reach of too many people, and that makes it an unattractive prospect for newcomers resulting in dwindling driver numbers.

In addition to the “normal” range of suggestions received from drivers, promoters, officials and suppliers, the rule change proposals detailed in this document are also the result of consultation with a number of trusted persons across BriSCA F2 Stock Car racing who it is believed have the general interests and future well-being of the sport at heart, and who are able to look past self-gain to ensure a bright future for participants, suppliers, promoters, and spectators alike.

The general consensus is that tarmac cars are now too stable, too fast, slow down too well, and have too much grip. This makes them very predictable, able to brake later, and corner better, which in turn means that in many cases it is a “kamikaze” attack that is required in order to move a competitor out of the way. Frequently this results in hits harder than they really should be in Stock Car racing, incidents of “fencing”, expensive damage to both the chased and chasing cars, and sometimes, driver injury. Tarmac racing needs to return to the days of being able to catch a competitor, knock them out of the way, perhaps with armfuls of opposite-lock, but then both being able to continue in the race without expensive damage (much like the current shale scene). Of course things won't always go quite to plan, and there will be damage, but the sport should be managed in a way that the cost of such damage is lessened. The removal of “trick” parts, reducing grip and stability, increasing unpredictability, and lowering cost all have their part to play in this future vision in order to return the tarmac scene to former glories.

Change is inevitable in the constant battle to maintain a viable future for the sport while dealing with advances in racing technology and the widespread expansion of knowledge in how to make cars go faster. Advances must be permitted where appropriate; however, restraint has to be exercised to ensure that entertainment levels are high enough to attract competitors on to the grid and spectators through the turnstiles.

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## New Rule Proposals

The proposals in this section are for new rules or fundamental changes to existing rules.

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### Chassis

#### 1. Main Rails

All cars to be constructed with two main chassis rails running longitudinally from the front to the rear of the car. The main rails MUST start/terminate forward of the front axle, and rearwards of the rear axle.

##### Reason(s):

- **Rulebook Tidy-up** – The current rulebook implies that a car must be constructed with main rails (rather than a space frame type design), but does not explicitly state it.

#### 2. Chassis Height

The vertical centre along the entire length of the main chassis rails and all transverse cross-bracing between the two main chassis-rails to be no lower than the vertical centre of the bumpers, i.e. the main chassis rails and transverse cross-bracing must be level with, or above the level of the bumpers at all points.

##### Reason(s):

- **Competitive Parity & Cost** – Remove complex chassis designs that seek to lower the centre-of-gravity by stepping/lowering chassis rail heights between the axles.

#### 3. Ground Clearance

Introduce a MINIMUM ground clearance (e.g. 50mm, 75mm, 100mm) at all points under the chassis and any side pod(s).

##### Reason(s):

- **Future Vision** – Reduce the level of handling, in this case by raising the centre of gravity, to bring back some of the un-predictability with the aim of increasing race action.

#### 4. Ballast (1)

Reduce the maximum steel plate thickness, in ANY part of the car, to a MAXIMUM of 4mm.

##### Reason(s):

- **Future Vision** – Reduce the level of handling and corner speed to bring back some of the un-predictability with the aim of increasing race action.

#### 5. Ballast (2)

Mandate that ANY ballast, even if welded, is NOT permitted anywhere in the car's construction.

##### Reason(s):

- **Future Vision** – Reduce the level of handling and corner speed to bring back some of the un-predictability with the aim of increasing race action.

### Weight

#### 6. Inside Weight

Reduce the MAXIMUM left-side (inside) weight limit for cars running the Pinto or Duratec engine to 51.50%. Leave the MAXIMUM limit for cars running the Zetec engine at 52.50%.

##### Reason(s):

- **Competitive Parity** – Reducing the permitted inside weight limit for Pinto/Duratec cars is seen as a way to reduce their perceived performance advantage over those running the standard Zetec engine.

#### 7. Total Weight

Adjust the total weight limits, and weigh cars, to include the weight of the driver.

##### Reason(s):

- **Competitive Parity** – Reduce disparity between heavier and lighter drivers, thereby increasing the competitiveness of those currently disadvantaged by a fuller figure.

## Cab / Roll-Cage

### 8. Diagonal Cross-Bracing

ALL roll-cages to include in their construction a diagonal cross-brace from the top of the roll-cage on each side of the car down to the chassis-rail on the opposite side (effectively a large “X” frame when viewed from the rear), to a MINIMUM specification of 30mm CHS/SHS x 3mm wall thickness. These diagonal cross-braces would be permitted to intersect each other in the middle, and are designed to reduce side-ways deformation of the roll-cage in any impact from the side.

**Reason(s):**

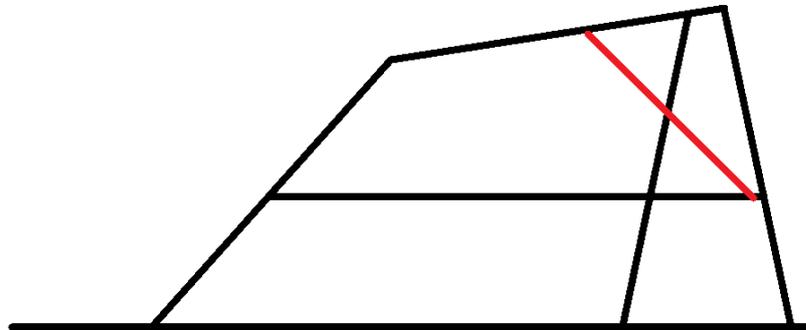
- **Safety** – Improved driver safety

### 9. Diagonal Roof-Supports

ALL roll-cages to include in their design a new diagonal roof support bar (shown in red in the diagram), aimed at providing additional roof support strength above the driver’s head in potentially one of the weakest roll-cage areas (where there is a long section of unsupported cage/roof from the middle pillar all the way to base of the windscreen).

**Reason(s):**

- **Safety** – Improved driver safety



### 10. 30mm Minimum Roll-cage Material

All external sections of the protective roll-cage to be constructed from a MINIMUM tube specification of 30mm CHS/SHS x 3mm wall thickness. This includes, but is not limited to:

- |                                                                                         |                                      |
|-----------------------------------------------------------------------------------------|--------------------------------------|
| ○ Main hoops                                                                            | (No change in spec.)                 |
| ○ Additional 5 <sup>th</sup> /6 <sup>th</sup> pillars (middle pillar on each side)      | (No change in spec.)                 |
| ○ 7 <sup>th</sup> pillar (in the rear window)                                           | (No change in spec.)                 |
| ○ Roof cross-members                                                                    | (No change in spec.)                 |
| ○ Cross-member at the base of the rear window aperture                                  | (Currently 25 x 2.5mm minimum spec.) |
| ○ Side window bars (sometimes referred to as “chicken-bars”)                            | (Currently 25 x 2.5mm minimum spec.) |
| ○ Down-bars (from the side-window bars to the main chassis)                             | (Currently 25 x 2.5mm minimum spec.) |
| ○ New mandated diagonal braces                                                          | (Currently 25 x 2.5mm minimum spec.) |
| ○ ANY and ALL other parts of the outer roll-cage that could be impacted by another car. |                                      |

**Reason(s):**

- **Safety** – Improved driver safety

### 11. Side-Window Bar Minimum Height

Side window bars to be mounted a MINIMUM of 325mm above the main chassis rail, at all points along their length, from the front to the rear roll-cage pillar. This measurement will be taken vertically from the top of the chassis rail to the level of the top of the side-window bar.

**Reason(s):**

- **Safety** – Improved driver safety

### 12. Side-Window Aperture Maximum Size

The size of the side window aperture, measured directly from the upper edge of the side window bar to the lower edge of the roll-cage hoop, at a point 300mm forward of the middle roll-cage pillar on the window bar, to be no greater than a MAXIMUM of 500mm (*Maybe 550mm – To be confirmed through research of existing cars, and measurement of wheel/tyre sizes*).

**Reason(s):**

- **Safety** – Improved driver safety

### 13. Roll-cage Height

A flat steel plate (e.g. a steel rule) to be able to pass through the cab from side to side, under the level of the roll-cage hoops AND above the driver's helmet (when the driver is sat in the car in racing position). The current rule 203.3.3 states: *"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, and back down to the chassis rails again."* This is therefore NOT a change in current requirements, but is to ensure compliance with the existing rule, a correct fit of roll-cage to driver, and an easy method of checking/policing.

**Reason(s):**

- **Safety** – Improved driver safety

### 14. Roof Plate Construction

The roof plate to be constructed from a single sheet steel plate only – curved, bent or folded as required, subject to roll-cage height and roof width rules. The current rule implies this, but does not explicitly state it. The welding together of multiple sections of plate should NOT be permitted.

**Reason(s):**

- **Safety** – Improved driver safety

### 15. Roll-cage Plating

Mandate that both sides of the roll-cage must be plated in 2mm steel plate to fully enclose the area bordered by the main chassis rail, the front and rear roll-cage pillars, and the side window bar.

**Reason(s):**

- **Safety** – Improved driver safety

### 16. Roll-cage Gusseting

A MINIMUM number of mandatory triangulated gussets to be required at specified joints in the roll-cage to provide additional strength. Such gussets must be constructed of a MINIMUM of 3mm plate (TBC), and measure a MINIMUM of 75mm x 75mm (TBC). The requirement for gussets, number and size of them, will depend on the requirement for the roll-cage plating (see separate proposal), and will be confirmed with qualified engineers/car constructors.

**Reason(s):**

- **Safety** – Improved driver safety

### 17. Roll-cage Holes

The drilling of holes in roll-cage tubing should NOT be permitted. Any bodywork, switches, gauges, mirrors, clips, seat, or any other item, should be mounted to additional welded lugs or tubing only.

**Reason(s):**

- **Safety** – Improved driver safety

### 18. Foot-Guard

Mandate the installation of a metal guard behind the driver's feet, between the floor and seat-mounting cross-member, aimed at preventing any entanglement of the driver's feet in an incident, with the additional benefit of preventing object intrusion. Guards should be made from metal plate or steel mesh.

**Reason(s):**

- **Safety** – Improved driver safety



## Floor / Side-Pod / Sump-Guard

### 19. Cab Floor (1)

Restrict the length of the cab/driver-compartment floor. The floor should not be permitted to extend rearwards of the front edge of the driver's seat by any more than a fixed distance (e.g. 50mm, 75mm, 100mm), while still conforming to the minimum 600mm length from the firewall. Alternatively, mandate a maximum floor length (e.g. 750mm), so long as the rear edge is level with, or behind the front edge of the driver's seat.

#### Reason(s):

- **Commercial Product** – Remove excessively large/heavy low-down material that seeks to lower the centre-of-gravity to improve handling and permit lighter materials to be used in other, higher parts of the chassis.
- **Future Vision** – Reduce the level of handling and corner speed to bring back some of the unpredictability with the aim of increasing race action.

### 20. Cab Floor (2)

Mandate the cab floor to be 3mm plate only, i.e. restrict the ability to use a 6mm floor to keep the centre-of-gravity low when having to remove the current excessively large side-pod floors (see separate proposal).

#### Reason(s):

- **Commercial Product** – Remove excessively large/heavy low-down material that seeks to lower the centre-of-gravity to improve handling and permit lighter materials to be used in other, higher parts of the chassis.
- **Future Vision** – Reduce the level of handling and corner speed to bring back some of the unpredictability with the aim of increasing race action.

### 21. "Side-pod" Floors

The installation of any floor section, outside of the main chassis rails, should only be permitted for the purpose of mounting/protecting any fuel tank and/or battery. A maximum size (footprint) of such floor section should be specified. This could be specified as:

- The footprint of the fuel-tank and/or battery, with a MAXIMUM additional permitted 75mm in each direction around the fuel-tank and/or battery.
- A maximum length and width, e.g. 900mm (L) x 300mm (W).
- An alternative suggestion.

#### Reason(s):

- **Safety** – Some existing steel plates have been observed to act like a blade, even cutting through a concrete weighting pad in one instance.
- **Future Vision** – Reduce the level of handling and corner speed to bring back some of the unpredictability with the aim of increasing race action.

### 22. Additional Floor Sections

The construction/installation of any other floor section outside of the main chassis rails, other than as proposed separately, or any floor section between the main chassis rails forward of the driver/engine firewall, should NOT be permitted. E.g. steel plate around the left-front wheel area or under the engine.

#### Reason(s):

- **Safety** – Some existing steel plates have been observed to act like a blade, even cutting through a concrete weighting pad in one instance.
- **Future Vision** – Reduce the level of handling and corner speed to bring back some of the unpredictability with the aim of increasing race action.

### 23. Sump-Guard

Restrict the material specification of sump-guards to a MAXIMUM of 3mm thick aluminium plate/chequer-plate, and a maximum width (e.g. width of sump, or a fixed width such as 250 or 300mm).

#### Reason(s):

- **Commercial Product** – Remove excessively large/heavy low-down material that seeks to lower the centre-of-gravity to improve handling and permit lighter materials to be used in other, higher parts of the chassis.
- **Future Vision** – Reduce the level of handling and corner speed to bring back some of the unpredictability with the aim of increasing race action.

## Bumpers / Nerf-Rails

### 24. Bumper Blades

Bumper blades (front and rear) to be constructed from material with a MINIMUM wall thickness of 2.5mm, e.g. 50mm x 25mm x 2.5mm RHS, or 25mm x 25mm x 2.5mm SHS.

#### Reason(s):

- **Commercial Product** – Remove light-weight construction materials that break too-easily under contact, and return the element of contact racing for greater spectacle.

### 25. Rear Hoops

Optional hoops to be permitted on the rear bumper to protect the rear of the roll-cage, and/or prevent another car from riding up and over the rear wheel(s).

#### Reason(s):

- **Rulebook Tidy-Up** – Such a practice is currently accepted, however, there is no provision for it in the current rulebook.

### 26. All Bumper Hoops/Supports

All bumper hoops, bracing and support struts to be constructed from a MINIMUM material specification of 25mm CHS/SHS x 2.5mm wall thickness.

#### Reason(s):

- **Commercial Product** – Remove light-weight construction materials that break too-easily under contact, and return the element of contact racing for greater spectacle.

### 27. Nerf-Rails Outer Section (1)

The outer section of BOTH nerf rails to be constructed from two full lengths of CHS/SHS (25mm or 30mm), with a vertical distance between them of 100mm to 150mm. A MINIMUM of 3 vertical joining bars to be installed, to connect the two rail lengths vertically together, one at each end and one in the middle. All bars to be a MINIMUM wall thickness of 2.5mm. All space between the upper and lower rails, and the vertical joining bars, to be filled with 3mm thick plate.

#### Reason(s):

- **Future Vision** – Reduce the level of handling, stability, and corner speed to bring back some of the un-predictability with the aim of increasing race action.

### 28. Nerf-Rails Outer Section (2)

The outer section of BOTH nerf rails to be constructed from two lengths of 50mm x 25mm x 2.5mm RHS welded together vertically (forming a 100mm deep rail), running a MINIMUM length of 1100mm from front to rear (thus replicating the front and rear bumper blades).

#### Reason(s):

- **Future Vision** – Reduce the level of handling, stability, and corner speed to bring back some of the un-predictability with the aim of increasing race action.

### 29. Nerf-Rail Bracing To Main Chassis

The nerf rails to be connected to the main chassis rails, in the horizontal plane, by a MINIMUM of 4 braces on each side of the car, to a MINIMUM specification of 25mm CHS/SHS x 2.5mm wall thickness.

#### Reason(s):

- **Future Vision** – Reduce the level of handling, stability and corner speed to bring back some of the un-predictability with the aim of increasing race action.

### 30. Nerf-Rail Bracing To Under Chassis

The nerf rails to be connected to the lower under-chassis rails, diagonally, by a MINIMUM of 2 braces on each side of the car, to a MINIMUM specification of 25mm CHS/SHS x 2.5mm wall thickness.

#### Reason(s):

- **Future Vision** – Reduce the level of handling, stability, and corner speed to bring back some of the un-predictability with the aim of increasing race action.

### 31. Nerf-Rail Width

Change rule 205.10 to state that nerf rails must not extend past the wheels, on the axle with the widest track width, by more than 50mm.

#### Reason(s):

- **Rulebook Tidy-Up** – The current rule is ambiguous as it does not state which axle to use as the reference point, and most cars feature a different track width on each axle.

## Axles / Transmission

### 32. Track Width

Reduce the MAXIMUM permitted track-width to 64in (from the current 68in).

#### Reason(s):

- **Future Vision** – Reduce the level of handling, stability, and corner speed to bring back some of the un-predictability with the aim of increasing race action.

### 33. Anti-Roll Bars

Restrict the use of anti-roll-bars to a MAXIMUM of 1 per car, to be used on either the front or the rear axle (at the driver's choice).

#### Reason(s):

- **Future Vision** – Reduce the level of handling, stability, and corner speed to bring back some of the un-predictability with the aim of increasing race action.

### 34. Right-Front Camber

Introduce a MAXIMUM permitted camber angle of 3 degrees on the right-front (off-side) wheel.

#### Reason(s):

- **Future Vision** – Reduce the level of handling, stability, and corner speed to bring back some of the un-predictability with the aim of increasing race action.

### 35. Rear-Axle Link Bars (1)

Mandate all 4 rear-axle link bars to be the same length.

#### Reason(s):

- **Simplification and Standardisation** – The complexity of cars, and preponderance of “trick” parts, is often seen as off-putting and acts as a barrier to entry into the sport for would-be competitors.

### 36. Rear Axle Link Bars (2)

Mandate a MINIMUM vertical gap of 100mm between the rotational-centres of the mounting bearings/bolts for the top and bottom links on the rear axle. The upper bars to be mounted above the rotational centre of the axle, the lower bars to be mounted below the rotational centre of the axle.

#### Reason(s):

- **Simplification and Standardisation** – The complexity of cars, and preponderance of “trick” parts, is often seen as off-putting and acts as a barrier to entry into the sport for would-be competitors.

### 37. Rear Axle Toe/Bracing

Prohibit the practice of toeing in/out the rear axle casing/wheels through the use of adjustable bracing. Mandate that any bracing be fixed/non-adjustable.

#### Reason(s):

- **Future Vision** – Reduce the level of handling, stability, and corner speed to bring back some of the un-predictability with the aim of increasing race action.
- **Simplification and Standardisation** – The complexity of cars, and preponderance of “trick” parts, is often seen as off-putting and acts as a barrier to entry into the sport for would-be competitors.

### 38. Rear Axle Casing – BriSCA F2 Control Casing

Introduce a BriSCA F2 “stock” control rear-axle casing. Such a casing would be designed and constructed to a common BriSCA F2 specification.

#### Reason(s):

- **Component Availability** – Standard Ford production solid rear axles are becoming increasingly harder to obtain, especially in large quantities.
- **Future Vision** – Reduce the level of handling, stability, and corner speed to bring back some of the un-predictability with the aim of increasing race action.
- **Simplification and Standardisation** – The complexity of cars, and preponderance of “trick” parts, is often seen as off-putting and acts as a barrier to entry into the sport for would-be competitors.

**39. Prop-Shaft Tunnel**

Mandate the use of a metal prop-shaft cover/tunnel on all cars (as currently required at Venray). This would either be to the 3mm steel specification currently in the rulebook, in which case no additional hoops would be required, or, a thinner metal plate in which case the required prop-hoops would still be necessary.

**Reason(s):**

- **Safety** – Protection of driver from entanglement in the spinning prop-shaft.

**40. Elite Gearboxes (1)**

Outlaw the use of Elite Gearboxes. Mandate that only a standard Ford original gearbox casing, or direct aftermarket replacement, may be used with an appropriate replacement set of gears (e.g. Tran-X, Quaife).

**Reason(s):**

- **Competitive Parity** – The use of the Elite gearbox allows near perfect gearing at any track through the use of an almost infinite range of drop-gears.
- **Cost** – Elite gearboxes are seen as an expensive bespoke racing item, far from “stock”.

**41. Elite Gearboxes (2)**

Retain the permitted use of the Elite gearbox, but mandate a fixed number/range/ratio-set of permitted drop-gears.

**Reason(s):**

- **Competitive Parity** – A fixed number and specification of sets of permitted drop gears would reduce the competitive advantage of an infinite range of gearing, therefore becoming more akin to a Tran-X / Quaife gearbox used with a range of differential ratios.
- **Cost** – The cost benefit of requiring only one, or a couple, of cheaper standard ratio differentials with appropriate limited-slip internals would be retained.

## Wheels / Tyres

**42. Tyres (1)**

Mandate the compulsory use of a commonly available inferior tyre (when compared to the current Yokohama) on the inside front wheel, or inside rear wheel (to be agreed), for the 2018 season. For example, the 185/70 R13 GT Saverio trailer tyre.

**Reason(s):**

- **Future Vision** – Reduce the level of handling and corner speed to bring back some of the unpredictability with the aim of increasing race action.
- **Cost** – Tougher side-walls for greater longevity and a lower price.

**43. Tyres (2)**

Withdraw the permitted use of the Yokohama A021R tyre and replace it with a stronger, less performant tyre for the 2019 season.

**Reason(s):**

- **Future Vision** – Reduce the level of handling and corner speed to bring back some of the unpredictability with the aim of increasing race action.
- **Cost** – Tougher side-walls for greater longevity and a lower price.

**44. Wheels – 14in Rims**

Withdraw the use of 13in wheel rims, and switch to 14in wheel rims from the start of the 2019 season.

**Reason(s):**

- **Availability** – “Scrapyard” 13in rims are increasingly hard to find in quantity and quality. 14in rims are in much more common use now.
- **Cost** – A greater availability of permitted 14in rims would negate the “forced” need to purchase expensive racing wheels.
- **Commercial Product** – The use of 14in rims would facilitate the use of more standard Ford braking components that do not fit within the current 13in rim, thus realising the benefits of the various change proposals for the braking system documented separately.
- **Commercial Product** – The use of 14in rims would provide greater opportunity to use a highly available budget tyre, thus realising the tyre benefits documented separately.

## Brakes

### 45. Disc Size

Reduce the maximum permitted brake-disc size to 240mm.

#### Reason(s):

- **Commercial Product** – Reduce braking power/efficiency, requiring cars to brake earlier for the corner, thus giving more opportunity for pre-corner contact to improve the racing spectacle.
- **Cost** – Standard parts cheaper than racing components.

### 46. Calipers (1)

Mandate one/two/three standard brake caliper options.

#### Reason(s):

- **Commercial Product** – Reduce braking power/efficiency, requiring cars to brake earlier for the corner, thus giving more opportunity for pre-corner contact to improve the racing spectacle.
- **Cost** – Standard parts cheaper than racing components.

### 47. Calipers (2)

Mandate 4 working brake calipers at all times.

#### Reason(s):

- **Safety**

### 48. Pads

Mandate a single control brake-pad.

#### Reason(s):

- **Commercial Product** – Reduce braking power/efficiency, requiring cars to brake earlier for the corner, thus giving more opportunity for pre-corner contact to improve the racing spectacle.
- **Cost** – Standard parts cheaper than racing components.

## Electrical

### 49. Electric Cut-off

Mandate a single fixed location, e.g. the base of the windscreen on the left-hand side, for the mandatory electrical cut-off switch.

#### Reason(s):

- **Safety** – A consistent location for ALL cars, as is the case in many other formulas, would aid track-marshals in being able to quickly and easily switch off a car in an incident.

### 50. Electric Cut-off Pull-cord

Implement the mandatory mechanical electric cut-off pull-cord currently required in The Netherlands, mounted in the rear of the car, in ALL BriSCA F2 cars.

#### Reason(s):

- **Safety** – In the Steve Smith #299 roll-over incident at the St. Day WCQR, where the car flipped with a stuck throttle, NO-ONE could get to the master switch until the driver had been extricated from the car.

### 51. Battery

Permit the use of a single “075” battery (245mm x 175mm x 175mm), as an alternative to one or two “063” batteries.

#### Reason(s):

- **Safety** – A larger battery (higher “cold cranking amps” power) has been requested to help with restarting a stalled hot engine, especially on shale, enabling a stranded car to move to safety.

### 52. Battery Mounting

Mandate that one side of the battery (for batteries mounted outside of the main chassis rails) must be parallel to the main chassis rail, augmenting the existing rule 200.9 that states *“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.”* In some cases batteries have been mounted diagonally, with only one corner in line with the chassis rail, thus having them stick out further than the intention of the existing rule.

#### Reason(s):

- **Rulebook Tidy-Up**

## Fuel

### 53. Fuel Cut-off

Mandate a single fixed location for the mandatory fuel cut-off switch/tap/pull-cord.

**Reason(s):**

- **Safety** – A consistent location for ALL cars would aid track-marshals in being able to quickly and easily switch off the fuel supply.

### 54. Electric Fuel Pump

Mandate that electric fuel pumps MUST cut out, if the engine stops running.

**Reason(s):**

- **Safety** – Electric fuel pumps are commonly wired so that they continue to pump fuel even if the engine stops/stalls. This could be disastrous in an incident if the driver is unconscious.

### 55. Fuel Tank Mounting

Mandate that one side of the fuel-tank must be parallel to the main chassis rail, augmenting the existing rule 222.2.11 which implies as such, but does not explicitly state it.

**Reason(s):**

- **Rulebook Tidy-Up**

### 56. Fuel Supply

Mandate that where BriSCA F2 or a promotion provides fuel to a driver for a race or meeting (as per current rule 222.4.3) the driver must pay for the fuel to be used PRIOR to racing at the meeting (or the individual race).

- The initial fee WITHOUT CVL to be set at £20 for a normal format meeting, or £10 for a single race (as the entire tank will be drained and completely refilled), and £30 and £15 respectively WITH CVL.
- The suggested figures will be reviewed to ensure the driver is paying only to cover the cost of the fuel/CVL fuel supplied.
- Where a driver suffers early 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 for the fuel, 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).

**Reason(s):**

- **Rulebook Tidy-Up** – Process clarification

## Bodywork

### 57. Engine Cover

Permit the use of ventilation holes at the rear sides of the engine cover, especially on shale, to allow sufficient air-flow through the engine compartment to provide adequate engine cooling.

**Reason(s):**

- **Cost** – Shale engines are notoriously difficult to keep cool, especially in the wet when everything gets clogged up with shale. Without adequate cooling, facilitated by air flow, engines overheat and either blow up, or develop serious problems requiring more frequent refreshes/rebuilds (at significant cost).

## Engine – Pinto

### 58. Rev. Limit/Spec. Camshaft

Mandate a 7,750rpm hard rev. limit for the Pinto engine in conjunction with a common BriSCA spec. camshaft.

#### Reason(s):

- **Competitive Parity** – Reduce the performance a little of the top-line Pinto engines.
- **Cost** – Reduce the stress and strain of running the Pinto engine at high RPMs, thus reducing the likelihood of sudden unexpected failure, while at the same time increasing the interval between required engine rebuilds from the wear and tear of running at high RPMs.

### 59. Water Pump Pulleys

Mandate that the water pump pulleys (on the crankshaft and the water pump) must be a standard original size.

#### Reason(s):

- **Performance** – To avoid performance gains from experimenting with speeding-up/slowing down the water pump to minimise loss of horsepower.

### 60. Flywheel

Mandate a fixed specification steel flywheel that may not be machined or lightened.

#### Reason(s):

- **Safety** – The practice of lightening, drilling and/or machining 40yr-old cast flywheels is fraught with danger and could lead to serious driver and/or spectator injury should one fail. Other formulas are specifying such an item on professional advice.

### 61. Ignition Module

Mandate the use of the standard Ford/Motorcraft ignition module, designed for the Pinto engine, only. Smaller ignition modules bolted to distributors, or those manufactured for other makes, e.g. Peugeot should not be permitted.

#### Reason(s):

- **Standard Ford Components.**

### 62. Sump

Mandate a minimum depth for the sump (e.g. 160mm – to be researched) along at least 50% of its length (similar to the Zetec rule), in-line with the vast majority of acceptable sumps currently in use.

#### Reason(s):

- **Competitive Parity** – Prevent the development/use of ultra-low-profile sumps to permit engines to be lowered in the chassis, lowering the centre-of-gravity, thus gaining additional advantage over cars using the Zetec engine.

## Engine – Duratec

### 63. Duratec Permitted Use (1)

Withdraw the permitted use of the Duratec engine, with IMMEDIATE effect, for anyone not currently running such an engine.

#### Reason(s):

- **Reduce Complexity** – The Duratec engine is an expensive failed project with very little take-up in BriSCA F2.

### 64. Duratec Permitted Use (2)

Withdraw the permitted use of the Duratec engine, from the start of the 2019 season (or maybe 2020?), for those already running such an engine on a regular basis.

#### Reason(s):

- **Reduce Complexity** – The Duratec engine is an expensive failed project with very little take-up in BriSCA F2.

## Engine – All Engine Types

### 65. Alternator

Formally permit the use of an alternator if so desired.

#### Reason(s):

- **Rulebook Tidy-Up** – The use of alternators on shale cars in The Netherlands is seen as an acceptable practice, although the rulebook currently has no specific provision for this.

## Exhaust – All Engine Types

### 66. Prohibit 4-2-1 Exhausts

4 to 2 to 1 exhaust configurations will not be permitted from 2018, as per information previously published.

#### Reason(s):

- **Previous Change** – Implementation of previously announced change.

### 67. Standardised Rules

Standardise ALL exhaust rules (to those currently mandated for the Zetec engine) for all engine types in 2019.

#### Reason(s):

- **Rule Parity** – Reduce any competitive advantage for the Pinto/Duratec engine due to the current less restrictive exhaust rules.

## Bell-Housing – All Engine Types

### 68. Specification (1)

Clarify that original Ford bell-housings, or commercially available after-market replacements are permitted, in their original manufactured specification, subject to any other permitted modification specified in the rulebook.

#### Reason(s):

- **Rulebook Tidy-Up** – The wording of current bell-housing rules makes the assumption that all bell-housings are original Ford cast or alloy components, however, a large number of after-market components are currently in use due to their stronger construction, beneficial for contact racing.

### 69. Specification (2)

Clarify that ANY 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 gearbox. The use of “open –bottomed” bell-housings, allowing the engine to be mounted lower in the chassis, should NOT be permitted.

#### Reason(s):

- **Rulebook Tidy-Up** – Aimed at preventing unwanted development / modification / expense for performance gain.

### 70. Specification (3)

Explicitly state that the removal of material from the bottom of any bell-housing in order to lower the bell-housing/engine in the car, or for any other purpose, is not permitted.

#### Reason(s):

- **Rulebook Tidy-Up** – Aimed at preventing unwanted development / modification / expense for performance gain.

## Grading Colours

### 71. Roof Colours Requirement

Remove the requirement to paint the roof-plate, and sides of the cab if appropriate, in the driver's grading colour/neutral colour where a top-mounted aerofoil/wing is used. The aerofoil only would be used to denote a driver's grading.

#### Reason(s):

- **Cost** – Reduced cost (time and money) when changing grades.
- **Commercial Product** – Even the 2017 rule is not consistently implemented and many cars (the commercial product) currently look even worse than they did in 2016.

### 72. Roof Colours – Silver/Grey/Gold

Explicitly exclude the use of ANY shade of silver, grey, or gold for the roll-cage and “ear” panels above the waistline of the car.

#### Reason(s):

- **Commercial Product** – Despite repeated warnings, drivers continue to flout and argue the current rules. This dilutes the product seen by the paying spectator, and devalues/disrespects the achievement of the holder of the Points and World titles.

### 73. Roof Colours Policing

Police the roof-colour rules more stringently. Engage a panel to review photographs from each week's racing and issue non-conformance rectification notices to offending drivers. Offenders would be given 1 week to correct the issue; otherwise they would be prevented from racing until the issue is resolved.

#### Reason(s):

- **Commercial Product** – Despite repeated warnings, drivers continue to flout and argue the current rules. This dilutes the product seen by the paying spectator.

## Raceceivers

### 74. Raceceivers

Introduce the one-way Raceceiver radio technology, as used in BriSCA Ministox / Stoxkarts / Legends / MASCAR / National Hot-Rods.

#### Reason(s):

- **Safety** – It is felt that the use of Raceceivers could have avoided a number of high profile, costly, and injury inducing incidents that have occurred in recent weeks, e.g. the mass carnage resulting in a serious driver injury at the British Championship.
- **Commercial Product** – The use of Raceceivers could speed up the presentation of a meeting and tidy up the starts/restarts of races (preventing drivers from jumping/anticipating the start and suffering inconsistent penalties for doing so).

## Illegal Components

### 75. Component Retention

Any suspected illegal component, e.g. an underweight flywheel, or a modified engine component, should be retained by BriSCA F2, or an appointed representative (e.g. a scrutineer), and subject to a technical investigation/disciplinary as appropriate. Should the component be deemed illegal then it would be retained by BriSCA F2. Any component deemed to be legal would be returned to the driver.

#### Reason(s):

- **Rule Compliance** – Illegal components should not be released back in to circulation for re-use.

## Clarifications

The items in this section have been highlighted as requiring clarification or “tidying-up” in the rulebook. These items are NOT rule changes, but merely clarifications of existing rules for the avoidance of future doubt.

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- 208.4**      **Floor**
- Rule to be clarified that a floor which folds or curves up at the rear to meet the seat-mounting cross-member is acceptable provided that it meets the mandated 600mm length in the horizontal plane (i.e. from the vertical plane of the firewall, to the vertical plane at the rear-most point of such a floor where it meets the seat cross-member).
- 219.5.1/2**      **Floor**
- A folded-up/curved-up floor (coming up to meet the seat mounting cross-member) does NOT count as a mandated prop-hoop.
- 213.1.6**      **Shock Absorber Mounting**
- Rule to be clarified such that each individual shock-absorber must be predominantly mounted below the level of the main chassis rail. At least half the length of the shock absorber (between the top and bottom mounting bolts/bearings), when the car is at rest on a level surface, must be below the top of the main chassis rail adjacent to where the shock absorber is mounted.
- 220.1**      **Battery**
- Rule to be clarified to include the use of AGM (Absorbed Glass Mat) type batteries, which are what are often mistakenly referred to as gel-type batteries, e.g. Varley Red-Top, and Odyssey Extreme.
- 222.2.10**      **Fuel Tank Protection**
- The current rule specifies a minimum thickness for the fuel tank protection plate/bars, but not a minimum tube size. Rule to be clarified to state a minimum tube size of 25mm CHS/SHS x 2mm wall thickness.
- 231.15.3**      **Pinto Flywheel**
- Rule to be clarified that the bare flywheel weight rule includes the ring-gear.
- 233.9.7**      **Zetec Front Pulley**
- Rule to be clarified that the pulley and damper are a single unit.
- New Entry 1**      **Pinto Camshaft Follower Springs**
- Heavy-duty camshaft follower retaining springs are NOT permitted. There is no provision in the current rule-book for such items (they are non-standard), however a new rule for 2018 will explicitly state this.
- New Entry 2**      **Pinto Valve Springs**
- The rulebook will be updated to reflect the accepted use of competition valve-springs, subject to existing valve-spring rules.
- New Entry 3**      **Pinto Sump**
- The rulebook wording will be updated to reflect the current accepted use of modified/enlarged sumps.
- New Entry 4**      **Pinto Cylinder-Head Bolts**
- The rulebook will be updated to reflect the accepted shortening of cylinder-head bolts, use of a spacer washer, or deepening of the threaded hole in the block, when both the head and block are skimmed as per existing rules.