



**ENDURANCE CHAMPIONSHIP**



2021

**PUBLISHED COPY**



**TECHNICAL REGULATIONS**

**TROPHY CATEGORY**

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## 5 TECHNICAL REGULATIONS

### 5.1 INTRODUCTION

5.1.1 The following technical regulations are set out in accordance with the Motorsport UK specified format and it should be clearly understood that if the following texts do not clearly specify that you can do it, you **must** work on the principle that you cannot.

5.1.2 Where references are made to “original equipment”, the term is defined as –

“Is a part, the specification, features, location and method of operation of a part are as provided when new by the motor manufacturer for the model and date of car as shown on the technical form submitted via the Britcar Endurance website”.

### 5.2 CLASSIFICATION AND BEPI

5.2.1 Cars are split into their respective classes by the BEPI system.

5.2.2 This is achieved by starting with the standard peak BHP (at the wheels) that most Championships use, but we also add the peak torque at the wheels. This provides a more complete engine performance indicator and covers all the engine formats such as normally aspirated, turbo, diesel etc., that all have their various advantages. This engine figure is divided by the weight of the car giving a power to weight indicator.

The modifier list is then applied (and includes categories such as Aerodynamics, Suspension, electronic aids etc.). Each modifier category is split into sub items such as Front Splitter, Traction Control etc. Each of these sub items have a number of options to select i.e. Front Splitter :- None, Moulded, Fixed or Adjustable. Each of these options is given a numerical value depending on the performance advantage which can be negative as well as positive. By adding the Power to Weight indicator together with the Modifier indicator creates the Overall Performance Indicator.

5.2.3 The Britcar Endurance Performance Indicator (BEPI) is used to position the car within the class structure and ensure that cars are raced against other cars of a similar speed round a lap not just based on the same engine power.

5.2.4 The Britcar Endurance Performance Indicator is a guideline to the cars classification and this is hosted on our website but the final BEPI figure will be determined by Britcar Endurance. If you wish to discuss your BEPI classification and how to maximise your car in your class please contact David Hornsey our Technical Manager ([david@britcar-endurance.com](mailto:david@britcar-endurance.com))

5.2.5 The Britcar Endurance Performance Indicator system will be used across all the classes ensuring that all entered cars are judged and classified exactly the same.

- 5.2.6 Britcar Endurance reserves the right to alter and modify the BEPI as necessary.
- 5.2.7 Additional Bulletins will be issued to confirm particular cars BOP.
- 5.2.8 The Britcar Endurance Performance Indicator (BEPI) Ranges are only a guide but for more details please contact David Hornsey or Technical Manager at [david@britcar-endurance.com](mailto:david@britcar-endurance.com)
- 5.2.9 It is the competitor's responsibility to provide the promoters, on request, with recently measured (less than 6 months old) the standard peak BHP and mid-range BHP as well as the peak and mid-range torque figures. It will be these figures given to the championship promoters will be used to calculate an engine performance indicator.
- 5.2.10 Each competitor will submit the information about their vehicle by closing date before their first race weekend via the championships BEPI (Britcar Endurance Performance Indicator) registration system available on line (contact [claire@britcar-endurance.com](mailto:claire@britcar-endurance.com) for login details) – once submitted and the Technical Declaration signed.
- 5.2.11 Any changes to the Technical Declaration must be reported to the organisers before being allowed to qualify and race. The specification detailed on the Technical Declaration will be used by the Licenced Eligibility Scrutineer to confirm the eligibility of the vehicle against the class entered. An electronic copy of the Technical Passports will be held by the Britcar Endurance organisation and used as reference material.
- 5.2.12 Britcar Endurance reserves the right to add ballast, pit stop times and mandate intake restrictors or ride height during the season.

### **5.3 SAFETY REQUIREMENTS**

- 5.3.1 As per current Motorsport UK General Regulations Section K and appendices will apply to all vehicle and personnel equipment
- 5.3.2 As per current Motorsport UK General Regulations the Minimum General construction requirements of competition vehicles and racing vehicles will be applied as listed in sections J and Q respectively.

### **5.4 ELIGIBILITY OF COMPETING CAR**

- 5.4.1 The championship is open to any GT car or Production saloon car provided they meet the championship requirements. Open wheeled cars are prohibited.
- 5.4.2 All cars must have bodywork that encloses all suspension, drive shafts and exhaust system with the exception of cars which have these elements exposed as part of the original road car.
- 5.4.3 The car entered must be based upon, or derived from a car which has at some point in its homologated life been available as a road legal car from the original manufacturer.

- 5.4.4 Alternatively, the car may be deemed to be eligible if it is in the spirit of a road-based GT or Sportscar, for example a Ginetta G55. Decisions on the eligibility of a car model is to be determined by Britcar and their decision is final. Cars that do not meet these criteria, or do not fit into the BEPI classification limits may be accepted as an Invitation entry. To discuss the opportunity for an invitation entry please contact Claire Hedley. Entry must be submitted to the Championship organisation via the Britcar Endurance Performance Indicator (BEPI). The data provided will form the Technical Passport for your car for the Championship and will be used for Classification and Scrutineering.
- 5.4.5 In the event of any dispute, the competitor may submit the manufacturer's official homologation documentation from the road-based car, an FIA or MSA Technical Passport as reference.

## **5.5 EXAMINATION OF VEHICLES**

- 5.5.1 Vehicles competing in the Championships will be classed by the following method:-

The Championship Organisers reserves the right before or after any race in the championship to designate any one or more of the competing vehicles for special eligibility scrutineering. Upon such election being made the competitor shall immediately place the vehicle under the control of the Licenced Eligibility Scrutineer and be deemed to have permitted all such scrutineering, examination and testing as the Organiser may reasonably require to be undertaken. The Organiser has the right to:-

- a) Examine the vehicle at the circuit for such period as they may reasonably require and take fuel samples and/or have the component removed by the competitor.
- b) Retain the vehicle for detailed examination at premises chosen by the Licenced Eligibility Scrutineer in conjunction with the Organisers. If the Organiser selects to retain the vehicle they shall make it available for collection by the competitor at least seven days prior to the qualification session for the next race in the championship unless the vehicle is found to be in breach of these regulations and/or
- c) Seal the vehicle and its components in such a manner as they may choose and require the competitor at their own expense to present the vehicle at any other premises chosen by the Licenced Eligibility Scrutineer for detailed examination within a specified period and/or remove the vehicle by transporter at no expense to the competitor to an appointed location. The competitor will be advised in writing of the time, date and location of the subsequent testing or eligibility examination.
- d) The Organisers will use a variety of possible options to check the BHP & Torque declared is correct at their discretion. These will include data / power logging devices, an associated sensor which the competitor will be expected to provide an uninterrupted power supply to and a suitable mounting point by agreement with the championship eligibility scrutineer or by testing the car on a designated fixed or mobile rolling road test equipment.

e) The championship will use the championship designated rolling road to determine bhp. Cars can be checked at any time during a race meeting or during post session scrutineering and will consist of a minimum of 2 power runs to determine a BHP at the wheels figure. The competitor must provide suitable tools and equipment and personnel to enable the power run to take place when requested and each car must have easily accessible strapping points ahead of the drive wheels on a front-wheel drive car and rearwards of the drive wheels on a rear-wheel drive car to safely secure the vehicle to the rolling road. The competitor must advise the rolling road operator of all ecu/throttle/power maps and advise the operator how to select each map. Any subsequent discovery of non-declared maps will be reported to the scrutineers. Competitors entering Ferrari Challenge or Porsche 991 GT3 Cup or 718 GT4 or any GT3 homologated car who are unable to perform a rolling road test due to manufacturers restrictions must provide a power and torque graph from the vehicle in question upon request.

5.5.2 The Competitor will nominate a mechanic/technician to conduct any stripping of the engine or any required component requested by the eligibility scrutineer as per Championship Regulation Art.5.5.1 (a).

5.5.3 The Organisers reserve the right to re-inspect vehicles at any time during the course of the season.

Competitors will be personally and solely responsible for ensuring that their vehicles comply with their registration details and with these regulations at all times for each round at which they are entered. Failure to comply in either respect will be a breach of these regulations. Queries concerning eligibility should be referred in writing to the Licenced Eligibility Scrutineer at least seven days prior to an event entered to permit a ruling in advance of any meeting at which it is intended to compete.

5.5.4 In order to maximise equality of the performance, the Organisers will review the weight to power ratio coefficients after every round. Also, in order to balance performances in a fair way, the Championship Organisers reserves the right to introduce, for each of the individual entrants, any other technical restriction it may deem necessary.

## 5.6 EQUALISATION

5.6.1 The Championship organisers will endeavour to balance car performance in the classification performance of vehicles. If the car is found to be ineligible or unsuitable for its class the championship organisers have the right to reclassify accordingly. If a car moves class then points already received will NOT be allowed to be taken to the new class.

5.6.2 If a vehicle is found to be ineligible in some way then no points will be awarded but the Competitor must count the round as one of their points scoring rounds for the Championship.

5.6.3 The Championship reserves the right to use equipment to check a cars performance against their declared BEPI / Technical Passport.

## 5.7 CHASSIS

5.7.1 The original chassis is defined as the original road chassis, the originally supplied single make championship specification chassis or original FIA Homologated chassis, which ever applies to the relevant vehicle in question. (See Motorsport UK General Regulation J 5.2.1)

## 5.8 BODYWORK & AERODYNAMICS

5.8.1 Modifications Permitted.

### 5.8.2 GENERAL

5.8.2.1 All modifications must not infringe on the general requirements for competition / racing cars as set out in Championship Regulation Art.5.3.2.

### 5.8.3 INTERNAL

5.8.3.1 Seats: The driver's seat is free. It is mandatory to use a current FIA homologated seat with head restraint. All the passenger seats may be removed.

5.8.3.2 The trimmings situated below the dashboard and which is not a part of it may be removed.

5.8.3.3 It is permitted to remove the soundproofing material from all the doors. The door at the driver's side must be equipped with door trim. This trim may be original or be made of a metal sheet with a minimum thickness of 0.5mm or of another non flammable material with a minimum thickness of 2mm. In the case of a two-door vehicle, the trim situated beneath the rear side windows is also subject to the above rule.

5.8.3.4 It is permitted to remove the interior trim from the door in order to install a side protection panel, which is made from composite materials (lateral protection integrated in the side protection bar).

5.8.3.5 An alternative heating system other than provided by the vehicle manufacturer, and mentioned in his catalogue as supplied on demand, may replace the original heating equipment. It is permitted to blank off the water supply of the internal heating device, in order to prevent water spillage during an accident, providing an electric demist system or similar is available.

5.8.3.6 Air-conditioning may be added or removed. Driver cooling suits may be used with approval of the Eligibility scrutineer.

5.8.3.7 The steering wheel is free subject to compliance with current Motorsport UK General Regulations J. 5.7

5.8.3.8 Measuring instruments such as speedometers and the horn may be removed

## **5.8.4 EXTERIOR**

5.8.4.1 Aerodynamics devices may be fitted front and/or rear but may not extend forward or rearward from the original bodywork by more than 100mm beyond the 'bumper'. Aerodynamic devices fitted as original equipment by the manufacturer will be regarded as part of the original bodywork when calculating the BEPI. The mounting apparatus of such a device is deemed to be part of the aerodynamic device, for example, wing mounting struts which connect the aerofoil to the original bodywork of the car.

5.8.4.2 Extensions on the original bodywork on either side of the vehicle may be used in all classes. Any sections of the bodywork modified or attached must not have any exposed sharp edges.

## **5.8.5 AERODYNAMICS**

5.8.5.1 No aerodynamic device or spoiler may extend wider than the width of the bodywork. The mounting apparatus of such a device is deemed to be part of the aerodynamic device, for example, wing mounting struts which connect the aerofoil to the original bodywork of the car.

5.8.5.2 With the exception of cars entered to compete and presented in conformity with the relevant FIA Homologation for the vehicle type (including all and any FIA permitted Extensions and / or Variations of Homologation), no (rear) aerodynamic device may be higher than a horizontal line drawn from the top of the main roof of the cab or roll hoop in the case of open top cars as per MSA yearbook. For cars conforming to the relevant FIA Homologation they must comply with their relevant maximum height of rear aerofoil. The mounting apparatus of such a device is deemed to be part of the aerodynamic device, for example, wing mounting struts which connect the aerofoil to the original bodywork of the car.

## **5.9 RIDE HEIGHT**

5.9 All vehicles must have a minimum ride height of 40mm throughout with the driver in the car as per Motorsport UK General Regulation Q.19.1.2. The organisers / eligibility scrutineer will designate the area within Parc Ferme or the paddock where checks will be conducted with the tyre pressure set at 1.5 bar +or – 0.1 bar.

## **5.10 ENGINE**

5.10.1 The engine orientation and location is free.

5.10.2 Induction system is free.

5.10.2.1 The manufacturer of the supercharger or turbocharger is free.

5.10.3 Intake manifold is free

5.10.4 Exhaust manifold is free.

5.10.5 Ignition System – Free

5.10.6 Engines and vehicle management systems are free but competitors must declare systems type and permit championship officials to access hardware and software on request.

## **5.11 FUEL TANKS AND DELIVERY SYSTEMS**

5.11.1 The vehicle may not have more than 120 litres of fuel carrying capacity.

5.11.2 Fuel tanks may be replaced by a safety fuel cell homologated by the FIA (specification FT3). In this case, the number of cells are free and the cell must be placed inside the luggage compartment or in the original location. The construction of collector tanks with a capacity of less than 1 litre is free.

5.11.3 The various tanks (including the original fuel tank) and the FT3 tanks may also be combined, provided that the total of their capacities does not exceed the aforementioned limits.

5.11.4 The position of the original tank may only be modified in vehicles of which the manufacturer has placed the tank inside the cockpit or close to the occupants. In this case it is permissible either to install a protective device (fluid proof bulkhead) between the tank, and the occupants of the vehicle and, if need be, to modify its supplementary accessories (refuelling orifice, petrol pump, overflow pipe etc).

5.11.4.1 No fuel lines to be located within the passenger compartment except as protected as per current Motorsport UK General Regulation J. 5.13 Fuel Systems. All refuelling connections must be isolated from the passenger compartment by a fire/fuel proof bulkhead. Temporary parts are not allowed. Provision must be installed to allow the fuel tank to be drained without dismantling any of the fuel tank installation, components or associated pipework.

5.11.5 The fuel and air feed as well as auxiliary devices such as radiators, intercoolers and similar are free up to a maximum of 1 litre capacity. The driver must be protected from such devices by a fireproof bulkhead. No radiators or intercooler can be housed outside the vehicle bodywork.

5.11.6 Provision must be made to be able to drain all fuel from the tank and the fuel delivery system at the request of the Scrutineers. All teams must be equipped with supplementary pipes to drain the system into churns of sufficient capacity to hold drained fuel. The point of access for draining must be as close as possible to the fuel injection rail or carburettors so that any fuel in the pipes between the fuel pumps and the engine will also be pumped out.

5.11.6.1 Vent into a churn only.

5.11.7 The car must finish the race with a minimum of 3 litres of fuel remaining in the fuel tank, which can be easily withdrawn from the operational tank supplying the engine at the request of the scrutineer for the purposes of fuel testing as provided by Motorsport UK General Regulations.



## 5.12 TRANSMISSION

- 5.12.1 Energy recovery systems are only permitted if it is fitted as original equipment in the model concerned.
- 5.12.2 Cars may only be driven by the front axle or the rear axle. Four wheel drive and all wheel drive is not permitted.

## 5.13 SUSPENSION - free.

## 5.14 WHEELS/STEERING

- 5.14.1 The complete road wheel (flange, rim, tyre size) are free provided that they may be housed within the bodywork; this means the upper part of the complete wheel (tyres including the rim flange), located vertically over the wheel hub centre, must be covered by the bodywork, when measured vertically and comply with current Motorsport UK General Regulations.
- 5.14.2 Wheel fixations by bolts may be changed to fixations by studs and nuts or vice-versa. The stud/bolt diameter is free. A spare wheel and the fixation points may be removed.

## 5.15 TYRES

- 5.15.1 It is a requirement that all vehicles competing in the championships must qualify and race on Dunlop Direzza or Goodyear Wet tyres or Dunlop Wet tyres. In the event of an equivalent Goodyear tyre available to the Dunlop Direzza during the season this tyre will also be acceptable following confirmation from Britcar-Endurance.
- 5.15.2 The artificial heating of rims and/or tyres is **permitted** but chemical treatment is **prohibited**.
- 5.15.3 It is mandatory that all entries run on **Goodyear or Dunlop** branded tyres only, unless a comparable size is not available. Such instances must be declared to the organisers at the time of entry for the Organisers' written agreement prior to the event as to tyre brand and specifications including compound[s]. The Organisers' decision in this regard will be final and in their entire discretion.

## 5.16 WEIGHT

- 5.16.1 The minimum weight of the vehicle only will be determined by applying the power to weight calculation. The weight without the driver on board will be measured as soon as possible after crossing the finishing line. No fluids or other materials may be added to the car between crossing the line and being weighed. The car weight will include all remaining fuel on board.
- 5.16.2 The Championship reserves the right to ask teams to add weight to equalize the performance.

## 5.17 ELECTRICAL

- 5.17.1 Lighting -

5.17.1.1 All competing vehicles may have working directional indicators front and rear (if fitted). Coloured lights solely for the purpose of identification may be fitted however the total lit area of these lights may not exceed 1200mm<sup>2</sup> on each vehicle.

5.17.1.2 Competition Numbers.- All competition numbers MUST be during night racing sessions.

5.17.2 Lighting – Headlights: - Vehicles competing in night races must be equipped with dipped beam, main beam and rear marker lights. The operating of any retractable headlights, including its energy source, may be modified. Freedom is granted with regard to the frontal glass, reflector and bulbs although glass must be protected to prevent any broken glass being dropped onto the circuit.

5.17.2.1 Vehicles may carry up to 6 forward facing lights and in a mixture of headlights and spot lights and provided that the total is an even number (to clarify this ratio - a car with twin headlights may fit 2 spotlights while a car with single head lights may fit 4 spot lights). A single light is defined as a single enclosed light unit which may in itself contain multiple light sources.

5.17.3 Brake lights - All vehicles must be fitted with working brake lights as per Motorsport UK General Regulation Q. 19.11.3.

5.17.4 Rear Fog Light - Vehicles must be fitted with a high intensity rain light(s). As per current Motorsport UK General Regulation K. 5 Red Warning Light.

## **5.18 BATTERIES**

5.18.1 The make and capacity of the batteries are free. Each battery must be securely fixed and covered to avoid any short-circuiting or leaks.

5.18.2 Should the battery be relocated from its original position, it must be attached to the body using a metal seat and two metal clamps with an insulating covering fixed to the floor by bolts with a minimum diameter of 10mm and a washer at least 3mm thick and with a surface of at least 200mm<sup>2</sup> beneath the metal of the bodywork. Any wet cell battery installed in the cab must be encapsulated to prevent leakage in accordance with Motorsport UK General Regulations.

5.18.3 Generator and Voltage Regulator - A generator must be fitted and operational. Its position and driving system are free.

## **5.19 BRAKES**

5.19.1 As per current Motorsport UK General Regulation J. 5.6 Brakes.

5.19.2 Cooling of brakes front and rear is permitted: Protection shields may be removed or modified.

5.19.3 Cooling ducts may be added provided the ducting does not interfere with the steering or suspension movement. Air intake points must not extend outside the bodywork.

5.19.4 Carbon brakes are prohibited unless fitted to the original car as standard Motorsport UK General Regulation J. 5.6.1. If a Car is fitted with carbon brakes (as standard) it must be declared and will be included in the BEPI calculation.

5.19.5 ABS braking systems are prohibited unless fitted to the original car as standard Motorsport UK General Regulation Q. 19.5.1 If fitted it must be declared and be included in the BEPI calculation.

## **5.20 FUEL**

5.20.1 Fuel Grade - The Championship allows fuel to be used in accordance with the current Motorsport UK General Regulation B. Pump Fuel or FIA specification fuel in compliance with FIA Appendix J, Article 252, Article 9”.

5.20.2 Although not mandatory, Anglo American Oil Company Ltd can supply Sunoco Fuel but orders must be placed in advanced – see Art.7.1.5

## **5.21 SILENCING**

5.21.1 All cars will be tested to meet the as per Motorsport UK General Regulation J. 5.17. The Limit is 105dB(A) in accordance with Motorsport UK General Regulations conducted at 0.5 metre distance at 45 degrees from the outlet with the engine running at  $\frac{3}{4}$  speed.

5.21.2 Other limits may be applied by various circuit owners

## **5.22 PNEUMATIC JACKS**

5.22.1 Pneumatic jacks may be fitted to suitable points within the chassis of the car and must retract automatically when the air is released from an external valve outside the reach of the driver while seated. No work under the car is permitted using the pneumatic only. i.e safety devices must be attached to prevent the car dropping.

## **5.23 MANDATORY ON BOARD CAMERAS**

5.23.1 It is the team’s responsibility alone to have a fitted forward facing in-car camera positioned to provide a ‘driver’s eye’ view that should include, where possible, the steering wheel, show the track ahead of the vehicle with a field vision of approx. 100 meters, the driver and the dashboard displaying the driver's race number.

5.23.2 The mounting must be of a mechanical means of attachment sufficiently robust to withstand anticipated stresses and vibration and must not present any sharp edges or projections in the vicinity of the driver’s body or helmet. The mounting must be approved by the eligibility scrutineers. Motorsport UK General Regulation J. 5.21 applies.

- 5.23.2 The unit must be switched on and be recording at all times when the car is on track during any official free practice, qualification sessions and races. The onus is on the competitor to ensure that the unit's battery is charged, or its supply is operational, and the device remains operational during the above-mentioned sessions.
- 5.23.3 The memory card may be requested by the Organisers or by the Clerk of the Course or his representatives for any purpose including but not exclusively Judicial procedures under these Regulations and the recorded footage may be copied for use in broadcast or any other area deemed appropriate by the Organisers. Failure to provide the footage may lead to disciplinary measures by the Clerk of the Course and may prejudice their defence in the case of an incident."
- 5.23.4 Please also be aware of the intellectual property ownership rights referred to in Championship Regulation Art.6.3.
- 5.23.5 The use of this camera footage should not be used on Social Media to bring the series into disrepute or to engage a personal vendetta.