

## Bahrain Touring Car Championship – 2024/2025

### Technical Regulations

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## 1. Introduction:

- 1.1. It should be clearly understood that if the following texts do not clearly specify that you can make a modification you should work on the principle that you cannot. Competitors are advised to seek clarifications relating to technical regulations prior to the event. Such clarification should be submitted by the Competitor in writing and must be made to the CRC Office for the attention of the Race Director in writing. All queries will be answered in writing and all such answers will be published in Official Bulletins. Competitors should note that such advice may only be obtained from designated personnel within the CRC, and as such Competitors must seek written rulings from such members in order to minimize disputes.
- 1.2. The Organizers reserve the right to carry out necessary or required changes/clarification to these regulations which are due to "force majeure", safety reasons, non-competitiveness, or if requested by the authorities, by means of BMF Approved Official Bulletins.
- 1.3. **Standard:** the word '*Standard*' used within these technical regulations as a description of components is to be interpreted as 'the specified component from the manufacturer's parts list for the model/engine shown on the entry form or registration form. No modifications permitted beyond the repair or adjustment processes specifically specified by the manufacturers' workshop manual or microfiche.' Checking will be by comparison to OEM spare parts supplied by the manufacturer's official agent or by any other means necessary to ensure compliance.
- 1.4. **Standard pattern:** the words '*Standard Pattern*' used within these technical regulations as a description of components is to be interpreted as 'the replacement part has the same form, shape, and features as the *Standard* part and is constructed using the same materials and manufacturing processes.
- 1.5. References to Sporting Regulation Articles will be by the acronym "SR". References to Technical Regulation Articles will be by the acronym "TR".

## 2. General Description:

The Bahrain Touring Car Challenge "BTCC" is a BMF National Championship catered for any production front or rear-wheel drive cars of the form of hatchbacks, saloons, coupés, roadsters, convertibles, and T-Tops/Targas with engine capacity up to 4001cc Naturally Aspirated or Forced Induction and restricted to front-mounted engines. Homologation specials, open-wheelers, monocoque shell cars, space frame chassis, and kit cars are not permitted. Roadsters, convertibles, and T-Tops/Targas must have a permanently fixed hard-top/roof. The Technical Delegate will have full discretion in approving such modifications in order to ensure that modifications have been carried out safely.

- 2.1. Cars must be presentable, clean, and in good working order. The Championship Organizer reserves the right to either apply a penalty or forbid cars not meeting this requirement from taking part.
- 2.2. All cars must be of safe and sound construction and mechanical condition and be well maintained.
- 2.3. There is no requirement for Traffic Directorate registration (road legal), or insurance.
- 2.4. There are no restrictions on towing or trailering of cars to/from the circuit.
- 2.5. Alteration of driving configuration may be permitted on a case-by-case basis (i.e., switching from right-hand drive to left-hand drive and vice versa). Competitors must seek the approval of the organizer prior to conducting any retrofit. OEM parts must be used.
- 2.6. Four-wheel drive to two-wheel drive conversions is not permitted. This includes the removal of drive shafts or any four-wheel-drive connection system with the intention to deem the four-wheel-drive system inoperable.
- 2.7. Cars will run with weight limits as per Article 15 of these regulations.

## 3. Safety Requirements:

- 3.1. **Car:** All cars are required to comply with the following safety prescriptions as per Article 253 of FIA Appendix J (available from the BMF and/or CRC)
  - 3.1.1. **Driver's seat:** The original driver's seat must be replaced by an FIA-homologated competition bucket seat (8855/1999, 8855-2021, or 8862/2009 standard) with five (5) passages for the safety harness straps. FIA 8855-1999: The seat must be used in accordance with the seat

manufacturer's instructions and with FIA Technical List n°12. The limit for use of a seat is 5 years from the date of manufacture indicated on the mandatory label. An extension of 2 further years may be authorized by the manufacturer and must be indicated by an additional label. FIA 8855-2021 or 8862-2009: The driver must choose a seat that fits well. The seat must be used in accordance with the seat manufacturer's instructions and with FIA Technical List n°91 & n° 40. The limit for use is 10 years from the year of manufacture. The use of supports homologated with the seat in accordance with the Technical List n°91 & n° 40 is compulsory. The seat must be mounted by means of at least four (4) M8 bolts. Seat attachments homologated on a safety cage homologation extension form are authorized and recommended. The original seat mountings may be removed. The use of the competition seat mountings homologated with the bucket seat is recommended.

**3.1.2. Safety harness:** A safety harness equipped with a turnbuckle release system and having a minimum of five (5) anchorage points, homologated by the FIA in accordance with Article 253-6 of FIA Appendix J, is compulsory. Note: Harnesses homologated to FIA 8853/98 shall not be permitted beyond 31/12/2022. Harnesses homologated to FIA 8853-2016 will be compulsory beyond that date. Refer to FIA Technical List n° 57 for approved safety harnesses according to FIA Standard 8853-2016.

**3.1.3. Safety cage:** A safety cage complying with Article 253-8 of FIA Appendix J is compulsory. As of 1/1/2022, all tubes of the cage identified on the drawing below and all roof reinforcements must be fitted with paddings in compliance with FIA standard 8857-2001 type A (see FIA Technical List n°23). Each padding must be fixed in such a way that it is not moveable from the tube. As shown below.



**3.1.4. Extinguishers:** Extinguishing systems and manual extinguishers in compliance with FIA Standard 8865- 2015 (FIA Technical List n°52) or FIA Technical List n°16 are recommended. Manual extinguishers must meet the requirements of Article 253-7.3 of FIA Appendix J. Automatic extinguishers homologated in accordance with Article 253-7.2 of FIA Appendix J, are authorized and recommended. The extinguisher must have at least two outlets in the engine compartment and two in the driver's compartment. The external trigger switch must be clearly marked with the appropriate label. Extinguisher nozzles must be suitable for the extinguishant and be installed in such a way that they are not directly pointed at the occupants' heads.

**3.1.5. Protective nets:** A protective net is mandatory and must cover 80% of the driver window (when the window is measured from the widest horizontal points). Nets must meet the following specifications.

- **Net:** The net must be made up of woven strips at least 19 mm (3/4") wide. The meshes must be a minimum of 25 x 25 mm and a maximum of 60x60 mm. The woven strips must be nonflammable and sewn together at each point of crossing. The net must not be of a temporary nature.
- **Fixation:** The net must be attached to the safety cage, above the driver's window, and be affixed by means of a rapid-release system, even if the car turns over. It must be possible to detach the net with one hand. To this end, the handle or lever must have colored markings (orange "dayglo"). A push button release system is authorized provided that it respects the prescriptions of this article. The push buttons must be visible from the outside, be of a contrasting color, and be marked "press". For the attachment of the net or of its safety cage support, only screw-in connections are authorized. No modifications to the safety cage are authorized.
- Judges of Fact will report any car driving on track with the net not correctly installed. A drive-through penalty may be imposed and is not subject to appeal.

**3.1.6. Central power cut-off triggered from the cockpit and outside.** The external cut-off switch must be

clearly marked with an appropriate label. Internal cut-off must be easily reachable by the Driver when normally seated irrespective of whether a safety harness is worn or not. The circuit breaker must cut all electrical circuits (battery, fuel pump, alternator or dynamo, lights, ignition, electrical controls, etc.) and must also stop the engine.

3.1.7. All cars must be fitted with towing eyes/hooks/straps (front and rear). Towing eyes must be painted Yellow, Orange, or Red and if located within the vehicle periphery the location must be clearly marked. Tow hooks must not protrude outside the bodywork of the car.

3.2. **Driver Safety; detailed instructions and requirements of Driver Safety Equipment is a per FIA ISC Appendix L Chapter III.**

3.2.1. **Helmets:** All drivers must wear crash helmets compatible with FIA (Frontal Head Restraint) protection and as per the recognized FIA Standards listed in FIA Technical List N° 25. List of approved helmets are in FIA Technical list N° 69, 33, or 49. Drivers are requested to consult the BMF or CRC for further clarifications.

3.2.2. **Flame-resistant clothing:** all drivers must wear overalls as well as gloves, long underwear, a balaclava, socks, and shoes homologated to the FIA 8856-2000 (FIA Technical List N°27) or FIA 8856-2018 standard (FIA Technical List N° 74). Users must ensure that garments are not too tight, as this reduces the level of protection. Substances which may circulate in any cooling system worn by a driver are restricted to water or air at atmospheric pressure. Water systems must not require the saturation of a garment in order to function. Embroidery sewn directly onto the overall shall be stitched onto the outermost layer only, for better heat insulation. The backing material of badges and thread used for affixing them to the overalls must be flameproof (see Appendix 1 of the FIA 8856-2000 Standard for detailed requirements and instructions for use).

3.2.3. **Forward Head Restraints (FHR):** The use of a FHR device is mandatory and shall: Comply with an approved standard, and Be a good fit on the wearer, and Be of the correct type/angle for the vehicle being driven, and Be in good condition, free of cracks or signs of damage, and Not be

modified, except as specifically permitted by the manufacturer, and Only be used with helmets bearing listed in FIA Technical list N° 69, 33, or 49. Approved Forward Head Restraint devices are listed in FIA Technical List N° 29.

**Inspection:** A Scrutineer may check Forward Head Restraints at any time during an Event for condition and correct use. Where there is doubt about the compliance/condition, the Technical Delegate may impound the device for the duration of the Event.

### 3.3. Cockpit:

3.3.1. **Equipment permitted in the cockpit:** The only components which can be added in the cockpit are:

- Safety equipment and structures
- Seat, instruments and any other controls necessary for driving including the brake balance adjuster
- Electronic and electrical equipment; it is permitted to channel air towards the electronic equipment on condition that the ventilation devices comply with the present regulations.
- Driver cooling and ventilation equipment
- Ballast
- Braking and clutch system hydraulic lines with properly secured connectors
- Battery
- Fuel, hydraulic lines with properly secured connectors (FIA App. J. Art. 253.3.2)

None of the above items may hinder cockpit exit or the driver's visibility.

The above components must be covered where necessary by a rigid protective material to minimize injury, and their mountings must be able to withstand 25g deceleration.

3.3.2. **Cockpit exit time:** The driver, seated in his normal driving position, must be able to get out from the cockpit in 7 seconds through the driver's door and in 9 seconds through the passenger's door. For the purposes of these tests, the driver must be wearing all normal driving equipment, the seat belts must be fastened, the steering wheel must be in place, and the doors must be closed.

#### 4. General technical requirement:

Cars must be of sound construction and mechanical condition and be well maintained; cars must pass scrutineering checks to compete.

#### 5. Chassis:

The chassis cannot be modified unless permitted by the present regulations. Sub frames may not be modified for the fixation on the body shell or for the attachment of suspension elements. No chassis stiffening is permitted except that derived from the fitting of the roll cage and seam welding. Extensions to the roll cage are permitted through the front bulkhead but may not extend further forward than the centerline of the front wheels. A bolt-on strut brace may be fitted to the *Standard* top strut mountings; if no suitable holes are available in the *Standard* strut tower, up to 4 holes may be drilled in the inner strut tower to allow fitment or a mounting may be welded onto the inner strut tower. Rear strut braces are permitted.

#### 6. Bodywork:

##### 6.1. Modifications permitted:

**6.1.1. General:** replacement of side & rear windows with non-brittle plastic (e.g. Lexan, polycarbonate, or similar) of minimum thickness 4mm. The front windshield must be laminated and must remain of *Standard* material. All other non-laminated windows as well as side mirrors, must be covered with a transparent and colorless safety film in order to avoid the shattering and spraying of glass in the event of an accident.

**6.1.2. Interior:** All interior trim must be removed. AC/Heater assembly may be removed. The driver's seat must be replaced with an FIA approved bucket seat in line with Article 3.1.1. *Standard* Passenger and rear seats must be removed. If inner door trim panels are removed, the inside of the door must be neatly covered with solid sheets. The driver's door window must remain operable by the driver whilst normally seated or, if plastic windows are fitted, must contain an aperture that enables the driver to make hand signals. Instruments may be changed or added to. An interior rear-view mirror may be

fitted to the right of the driver (or left if the car is right hand drive).

##### 6.1.3. Exterior:

- i. Fog, spot, or auxiliary lights may be removed as may any manufacturer provided 'knockout' panels below front bumpers for the fitting of auxiliary lights and the apertures may be used for ducting. For *Standard* bumpers, a maximum of five holes of up to 50mm diameter each or equivalent area, may be made in the bodywork below the top line of the front and/or rear bumpers and may be used for ducting/cooling. Headlights, sidelights, and indicators must remain as *Standard Pattern*. Bonnet may be modified to include one or more intake/cooling ducts, covering a total surface area not exceeding 297mm x 420mm (A3 paper), and the height of which must not exceed 100mm above the bonnet.
  - ii. The *Standard* side mirror/s may be replaced by non-standard items provided each mirror has an area of at least 90 cm<sup>2</sup>. Both driver and passenger mirrors are required.
  - iii. Bonnet and rear hatch locks/latches must be removed along with any auxiliary latch; the bonnet and rear hatch must be fitted with surface mounted securing pins. At least one (1) windscreen wiper arm/blade must be fully functioning. Tailgate wiper and mechanism must be removed. Front washer systems may be removed.
  - iv. For roadsters, convertibles, T-Top, or Targa, the car's roof must be secured permanently.
  - v. A fireproof bulkhead must be provided which may entail the blanking of heater ducts (i.e., Interior compartment must be sealed from engine compartment).
  - vi. Cut-out or cockpit cooling vent of max surface area 25cm<sup>2</sup>.
- 6.1.4. Silhouette:** Alterations to *Standard* is permitted, including raising of the rear edge of the bonnet by up to 25mm in a secure fashion. Overall bodywork width may not exceed 1950mm.
- 6.1.5. Ground clearance:** it is permitted to alter the ride height. Under no circumstance can any part of the bodywork, or of the suspended part of the car with the exception of the exhaust system, be below a horizontal plane passing 75mm above

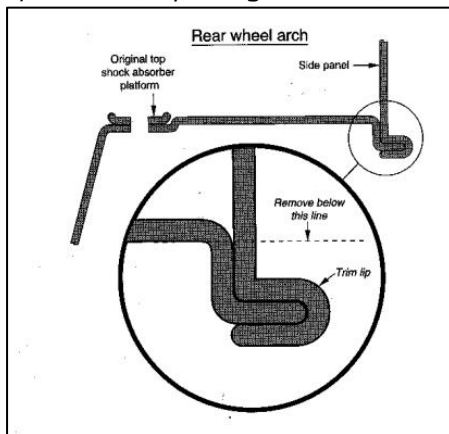
the ground, the car being in normal racing trim with the driver aboard. A gauge of 75mm may be used by scrutineers before or after races or qualification sessions to check the ground clearance.

## 6.2. Modifications prohibited:

**6.2.1. General:** Plastic front windscreen is not permitted. Removal of material from anything other than hinged panels (i.e., doors, bonnet & hatch), and bumper carriers/support is prohibited.

**6.2.2. Interior:** *Standard* dashboard may be removed. If the *Standard* dashboard is removed it must be replaced with a dashboard maintaining general shape and appearance, made from Fiber Glass/Carbon Fiber/Thermoplastic material. If the *Standard* dashboard is maintained the trimming(s) situated below the dashboard and which are not parts of it may be removed. It is permitted to remove the parts of the center console. The instruments are free. However, the installation should not present any risk. *Standard* switches may be replaced by switches of different design and may be fitted at different locations and easily accessible by the driver when normally seated with the safety harness worn.

**6.2.3. Exterior:** Underbody aerodynamics are prohibited. *Standard* wheel arch lips/outer edges may be rolled (as per diagram below).



## 6.3. Aero:

**6.3.1.** Body panels (front/rear fenders, front/rear bumpers, bonnet, door outer shell, and boot lid) may be replaced with aftermarket parts while maintaining *Standard* mounting points for the model being raced. Replacement parts may be

manufactured from non-metallic material such as plastic, fiber glass, or carbon fiber.

**6.3.2.** The use of front or rear (Aero Devices) such as spoilers, air-dams, splitters, or diffusers is permitted provided that:

- They are manufactured from a non-metallic material, preferably plastic or composite material.
- They are fixed using bolts, rivets, glue, or double-sided adhesive tape.
- Front Aero Devices: may not extend rearward more than the front of the front wheel-well opening nor should it extend upwards further than the front bumper center line.
- Rear Aero Devices: may not extend forward more than the rear of the rear wheel-well opening nor should it extend upwards further than the rear bumper center line.
- Aero Devices must not protrude further than 120mm beyond the overall outline of the body when viewed perpendicular to the ground above the part.
- Aero Devices may have a minimum of 50mm ground clearance.

**6.3.3.** Canards, side skirts, or other aerodynamic devices attached to the body are permitted.

**6.3.4.** Rear deck single-element spoiler/wing that attaches to bodywork is allowed.

- It must not protrude beyond 150mm off the overall outline of the body when viewed perpendicular to the ground above the part.
- It must not exceed the height of the roofline beyond 150mm when viewed perpendicular to the highest roofline.
- Rear spoiler/wing for hatchbacks will be reviewed on a case-by-case basis.

## 7. Engine:

**7.1.** Front mounted engines and limited to piston engines only (i.e., no rotary engines). Retrofitted engines are permitted as long as they meet technical regulations below and are from the same manufacturer as the car chassis. The Technical Delegate will have the right to reject any retrofit that is deemed unsafe or unsuitable.

## 7.2. Modifications permitted:

7.2.1. Engine capacity is limited to 4001cc regardless of whether the engine is naturally aspirated or utilizes force induction. The maximum permitted wheel horsepower (WHP) is 400.

7.2.2. It is permitted to reclaim engine blocks by fitting liners or by reboring up to 0.5mm oversize pistons.

7.2.3. Dry sump technology is permitted.

7.3. **Modifications prohibited:** Use of aftermarket blocks and heads is not allowed.

7.4. **Location:** the position and mounting method must conform to original model being raced.

7.5. **Oil/water cooling:** oil and water-cooling systems are free, provided that radiators remain within the overall periphery of the car.

7.6. **Induction systems:** Throttle body is free. Manifolds are free provided manifolds fit directly to the original port faces of the cylinder head.

7.7. **Exhaust systems:** Free, but exhaust systems must exit at the rear of the car and may not pass through the driver/passenger compartment. All cars must be equipped with a complete manifold back exhaust system, through pipes permitted.

7.7.1. Cars must comply to a prescribed sound level limit of 100 dB(A) at 4500 rpm.

7.7.2. Measurements will be made at 0.5m from the end of the exhaust pipe with the microphone at an angle of 45° with the exhaust outlet and at a height of 0.5 to 1.0m above the ground.

## 8. Engine Change:

8.1. Competitors are allowed a single engine change during the race season effective from registration of the car and after the initial eligibility scrutineering.

8.2. Engine Refreshes are permitted provided that it's performed on the same sealed engine block and head that is presented on the car during the initial scrutineering session. Any unpermitted and undisclosed engine change will result in a penalty as per series sporting regulations. An "Engine Refresh" is defined as any maintenance/repair to an engine within limits of using that same initially sealed head and block.

8.3. This rule also applies to a complete car change and change of the make of engine at any time during the Championship.

8.4. Drivers using more than two engines during a Championship season will be penalized by a six (6) point deduction penalty for the 3<sup>rd</sup> engine used, and

a further 12 points if a 4<sup>th</sup> (or more) engine(s) is/are used.

## 9. Suspension:

9.1. **Permitted modifications:** It is permitted to alter the ride height within the constraints of Article 6.1.5. Springs and dampers are free, provided they utilize the *Standard* pickup points on the chassis. Separate springs and dampers may be replaced by coil-over dampers using the *Standard* damper mountings. Adjustable spring platforms are permitted. Non-standard anti-roll bars are permitted. Offset and/or adjustable suspension strut mounts are permitted provided they utilize the *Standard* mounting points on the body shell. Suspension bushes are free. Rear suspension axle or beam may be modified but the type of suspension and chassis pick-up points may not be changed. Cockpit adjustable anti-roll bars are permitted. Shock absorbers utilizing an external/remote reservoir, or similar functioning setups, are permitted.

9.2. **Prohibited modifications:** no modifications are permitted to the suspension pick-up points. Wishbone and rear suspension arms must be *Standard* (except where required for camber adjustments or toe correction) and mount to *Standard* pickup points.

9.3. **Wheelbase/track:** the wheelbase must be  $\pm 5\%$  of *Standard* for the model being raced. No restriction to the track. Spacers must meet the following requirements:

9.3.1. Hub centered on both the wheel and the original hub.

9.3.2. The offset of the wheel and the width of the spacer when added together must not exceed 30% of the wheel's width.

## 10. Transmissions:

The transmission configuration must remain *Standard* for the car e.g., front engine & rear wheel drive, front engine & drive, etc.; the engine and transmission must remain in the same position relative to each other as the manufacturer's original specification. Four-wheel drive is not permitted (see Article 2.6). Driveshafts are free. Aftermarket sequential transmission is not allowed. Automatic transmission and dog boxes are permitted.

OEM PDK/DSG/DCT transmissions are allowed but only with cars fitted with those transmissions from the factory. Steering-mounted shifts are allowed. Swapping to an H-pattern transmission is allowed if the car originally was fitted with a PDK/DSG/DCT/Automatic transmission, and the opposite is allowed.

- 10.1. **Permitted modifications:** The fitting of a limited-slip differential is permitted. Clutch is free of restrictions. The use of any electronic traction control, electronic torque biasing system, or electronic/electrohydraulic adjustment of the differential is permitted. The use of Aftermarket or OEM gearbox internals, casing, bell housing, final drive housing, and tail-shaft is allowed.
- 10.2. **Prohibited modifications:** drive arrangement must remain Standard for the model being raced (e.g., if originally front-wheel drive, then must remain so).
- 10.3. **Drive ratios:** no restrictions on gear ratios and on final drive ratios.

## 11. Electrical:

The wiring harness is free. Electrical cutoff system to be retrofitted if not already present.

- 11.1. **Exterior lighting:** brake/stop lights, indicators, and headlights, either full or dip beam, must work and be clearly visible to other drivers.
- 11.2. **Rear Warning Light:** FIA homologated LED rear light, as specified in the Championship Technical Bulletin. The light must be within 10cm of the center line of the car and be clearly visible from the rear. The warning light may be operated (manually) by a dedicated switch easily accessible by the driver when normally seated irrespective of whether a safety harness is worn or not. It must be switched on when visibility conditions are reduced or when so instructed by the Clerk of the Course. Drivers may also utilize the light for indicating off track situation, stalled on the grid, driving slowly due to technical issue, and/or during safety car deployment or a red flag situation.
- 11.3. **Batteries:** no restrictions on type or position. If placed in cockpit, the battery must be in an enclosed box that is made of non-conductive material. A battery and electric starter motor must be fitted and be capable of repetitive starts. The make and capacity of the battery(ies) are free.

- 11.4. Should the battery be moved 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 and nuts. For attaching these clamps, bolts with a diameter of at least 10 mm must be used, and under each bolt, a counter plate at least 3 mm thick and with a surface of at least 20 cm<sup>2</sup> beneath the metal of the bodywork. The battery must be covered by a leak-proof plastic box, attached independently of the battery. Its location is free; however, if in the cockpit it will only be possible behind the front seats. In this case, the protection box must include an air intake with its exit outside the cockpit (see diagrams below)
- 11.5. **Generators:** a fully working alternator/generator must be fitted and electrically connected so that the standard battery charging function provides a charge to the onboard battery.

## 12. Brakes:

### 12.1. Permitted modifications:

- a) Brake bias: Cockpit-adjustable brake bias may be used by the driver.
- b) Free choice of material for brake pads.
- c) ABS is allowed whether Standard or aftermarket.

### 12.2. Prohibited modifications:

- a) The maximum number of pistons per caliper is: Six (6) pistons front caliper (one brake caliper per wheel), and a max of two (2) pistons rear caliper (one brake caliper per wheel).
- b) The brake discs must be made from ferrous metallic material. No ceramic coating allowed.

## 13. Steering:

- 13.1. **Permitted options:** Non-standard internals may be fitted to the *Standard* steering rack housing.
- 13.2. **Prohibited options:** Car(s) equipped with four-wheel steering are not permitted.
- 13.3. **Steering lock:** if fitted with a steering lock, this must be rendered inoperative. Column adjusting system must be locked with tools.
- 13.4. **Steering Wheel:** The physical steering wheel may be replaced with an aftermarket steering wheel. The fitting of displays, switches and control lights on



the steering wheel is allowed if offered by the steering wheel supplier.

#### 14. Wheels & Tires:

- 14.1. Permitted options:** The maximum permitted diameter of the wheels (rims) is 19 inches. The diameters measured at the level of the inner and outer rim edges of a wheel must be identical. In all other respects, the wheels are free provided that they are made of aluminum or ferrous compound, and that they are made in a single unit. The upper part of the complete wheel (flange + rim + tire), located vertically over the wheel hub center, must be covered by the bodywork when measured/viewed vertically.
- 14.2. Prohibited options:** Foam or any other system enabling the car to be driven without air in the tires is prohibited. All pressure regulations systems are prohibited. The fitting of air extractors on the wheels is prohibited.
- 14.3.** DOT or E-mark tires only. Racing Slicks not permitted. List of allowed tires will be announced in a separate Technical Bulletin.

Competition Weight	Tire Width	Allowed Width Tolerance (mm)
1,250kg or less	245	250mm
1,251kg - 1,350kg	255	260mm
1,351kg - 1,450kg	265	270mm
1,451kg - 1,500kg	275	280mm
1,501kg - 1,650kg	285	290mm
1,651kg and above	295	300mm

- 14.4.** The maximum permitted "tire width" (as listed on the tire's profile) is based on weight as per the table below. The complete wheel with tire installed inflated to a pressure of 30psi must not exceed the "allowed width tolerance".
- 14.5.** The use of tire heating/heat retention devices, tire treatments, and compounds is prohibited.
- 14.6.** Drivers may use a maximum of Three (3) sets of tires per season.
- 14.7.** Drivers must present the set of tires to be used to Scrutineers prior to the start of the initial practice session.

- 14.8.** Drivers must use one (1) set of marked tires per round (during qualifying session, Race 1, and Race 2). A set is defined as four (4) tires bearing the same Scrutineering mark(s).
- 14.9.** Failure to comply with the limits set in Article 14.7 will result in the award of a "half-points penalty" where the excess is used.
- 14.10.** Failure to comply with Article 14.10 (inclusive of cases of change of tire due to damage and wear/tear) will result in a "Start from Pit Lane" penalty where the excess is used.

#### 15. Balance of Performance

- 15.1.** The **Competition Weight (CW)** of a car, in kilograms (kg), includes the driver, car's fluids, and full driver race equipment. The minimum permitted Competition Weight is 1000kg.
- 15.2. Wheel Horsepower (WHP):** Competitors will need to determine the Competition Weight of the car and then utilize the weight in the formula below to derive the maximum permitted Wheel Horsepower (WHP) that the car may compete with.

$$WHP = \left( \frac{\text{Competition Weight}}{1 + \text{Balance}} \right) * 0.2055$$

- 15.3. Balance:** is a factor by which cars are given equivalency.

Engine Capacity (cc)	Balance
Naturally Aspirated - 1,999cc or below	-0.015
Naturally Aspirated - 2,000cc - 2,500cc	-0.01
Naturally Aspirated - 2,501cc - 2,900cc	0
Naturally Aspirated - 2,901cc - 3,500cc	0.01
Naturally Aspirated - 3,501cc - 4,001cc	0.03
Forced Induction - 1,999cc or below	0
Forced Induction - 2,000cc - 2,500cc	0.005
Forced Induction - 2,501cc - 2,900cc	0.015
Forced Induction - 2,901cc - 3,500cc	0.025
Forced Induction - 3,501cc - 4,001cc	0.045

Examples:

- i. Car weighing 1123kg with a 2,354cc turbo charged engine. *Using Balance of 0.005 (for forced induction engine capacity between 2,000cc - 2,500cc):*

$$\left( \frac{1123kg}{1 - 0.005} \right) * 0.2055 = 230hp$$

- ii. Car weighing 1250kg with a 1998cc naturally aspirated engine. Balance of 0 (for forced induction engine w/ capacity below 1,999cc):

$$\left( \frac{1250kg}{1 - 0} \right) * 0.2055 = 261hp$$

- 15.4. The formula below may be used to calculate a corresponding Competition Weight from a determined WHP.

$$Comp.Weight (kg) = \left( \frac{WHP}{0.2055} \right) \times (1 + Balance)$$

**Examples:**

- i. 3,686cc natural aspirated engine rated at 332 WHP using Balance of 0.03 (for engine capacity between 3,501cc - 4,001cc):

$$\left( \frac{332hp}{0.2055} \right) \times (1 + 0.03) = 1664 kg$$

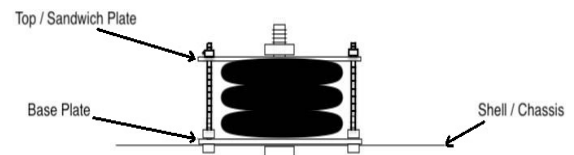
- ii. 1994cc turbo charged engine rated at 241 WHP using Balance of 0 (for forced induction engine w/ capacity below 1,999cc):

$$\left( \frac{241hp}{0.2055} \right) \times (1 + 0) = 1173 kg$$

**15.5. Ballast**

- 15.5.1. It is permitted to complete the weight of the car by one or several ballasts, provided that they are strong and unitary blocks/plates, placed on the floor of the cockpit passenger side or the luggage compartment, and clearly visible to the Scrutineers. The ballast must be attached to the shell/the chassis via at least 4 mounting points using 10.9 class bolts, with a minimum diameter of 14 mm, and two (2) steel

counter plates with minimum thickness of 3mm should sandwich (fit above and below) the shell/chassis. The minimum area of contact between shell/chassis and counter plate is 40 cm<sup>2</sup> for each fixing point. A bolt securing multiple plates must pass through the entire ballast plates. The ballast must be designed such that tools are required for its removal. Scrutineers will have the right to reject any added ballast that is deemed unsafe, unstable, or unsuitable. As shown below.



- 15.5.2. In consideration of safety, maximum allowable ballast (block/plate) should not exceed 25kg with the complete (stack/unit/set) not exceeding 50kg.

- 15.5.3. Any liquid type or movable ballast(s) are prohibited.

**16. Fuel Tank:**

- 16.1. **Types:** a safety tank or the *Standard* tank is permitted. If the *Standard* fuel tank is fitted, it may not be modified in any way except for the addition of foam filling. A nonreturn valve must be incorporated into the vent system. FIA approved safety fuel tanks complying with FIA Specifications FT3-1999, FT3.5, or FT5-1999 are authorized. FT3 1999, FT3.5 or FT5-1999 tanks must be filled with safety foam. They must be placed in the luggage compartment or in their original location. The total capacity of all non *Standard* tanks must not exceed 100 liters. Each safety fuel tank must have a marking with the following information:

- Name of the FIA standard
- FIA homologation number
- Name of the manufacturer
- Serial number
- Date of end of validity

No bladder may be used more than 5 years after the date of manufacture unless inspected and recertified by the manufacturer for a period of up to

another two years. A leak-proof cover, made from non-flammable material, easily accessible and removable only with the use of tools, must be installed in the protection for tanks, in order to allow the checking of the validity expiry date.

**16.2. Location:** The connections between the filler holes and the tank ventilation holes must be shielded by a fireproof and liquid-proof protective device. If the petrol tank and/or reservoir is located in the luggage compartment of a car with a tailgate, the tank must be shielded by a fireproof and liquid proof protective device. If the original tank is replaced with an FT3 1999, FT3.5 or FT5-1999 tank, the new assembly must not generate an aerodynamic surface or protrude further below the vehicle than the original tank. In all cases, there must be a fireproof and liquid-proof bulkhead between the cockpit and the luggage compartment. The location of the filler holes is free, apart from in the window panels, and they must not protrude beyond the perimeter of the bodywork. Cars fitted with a safety fuel tank with filler neck passing through the cockpit must be equipped with a non-return valve homologated by the FIA. This valve, of the type "with one or two flaps", must be installed in the filler neck on the tank side." The filler neck is defined as being the means used to connect the fuel filler hole of the vehicle to the fuel tank itself. If the filler hole is not used, it must be sealed. An original carbon filter in the tank air vent, as well as its control unit, may be removed. In the case of a fuel tank being fitted below the floor of the car, it must be contained in a close-fitting flameproof housing that adds no aerodynamic advantage and has no other mechanical function. This housing must include a crushable structure on all external surfaces and be secured by using a minimum of two metal clamps 30 mm x 3 mm fixed to the floor pan by bolts and nuts. For attaching these clamps, bolts with a diameter of at least 10 mm must be used, and under each bolt a counter plate at least 3 mm thick and with a surface of at least 20 cm<sup>2</sup> above the metal of the floor pan. The crushable structure must be a honeycomb sandwich construction based on a fire-resistant core of a minimum crushing strength of 18N/cm<sup>2</sup> (25lb/in<sup>2</sup>). It shall be permitted to pass water pipes through this core, but not fuel, lubricating oil or electrical lines. The sandwich construction must include two skins of 1.5 mm

thickness having a tensile strength of minimum 225N/mm<sup>2</sup> (14tons/in<sup>2</sup>). The minimum thickness of the sandwich construction must be 1 cm. The opening remaining after the removal of the original tank may be closed by the installation of a panel of the same dimensions as the fuel tank aperture.

**16.3. Fuel lines:** must be changed to aviation type (steel or braided) lines, they must be routed in a safe location away from the exhaust system or moving parts.

## 17. Fuel:

Pump grade gasoline or racing fuel only. Nitrous oxide, nitromethane, or any other chemicals that increase power is not allowed. At the end of practice and the race at least 3 liters of fuel from the tank of the competing car must be available to the Scrutineers for analysis. Cars must have a method for easy access to fuel samples, as no siphoning of fuel will be allowed. Compliance with the minimum weight for the car will be taken before the fuel is removed.

## 18. Telemetry & Two-way Communications:

All forms of data and video transmission to and from the moving car are forbidden (notwithstanding any data transmission(s) used by event officials), including two-way radio communications (including use of mobile phones). An on-board data logging system is authorized.

## 19. Numbers & championship decals:

Refer to Sporting Regulations for details. Championship sponsor's decals (where applicable) must be affixed in or near the positions detailed on the diagram supplied with those decals. CRC and championship sponsor's decals must take preference to any other decals. Failure to comply will render the car and driver ineligible to race.

## 20. Sealing Requirements:

- 20.1.** BMF approved seals may be applied to the following components:
- Cylinder Head to cylinder block - by external means (bolt / casting flange etc.)
  - Sump pan to cylinder block - by two adjoining bolts/studs

- c) Inlet manifold to cylinder head - by two adjoining bolts/studs
- d) Gearbox casing/cover - by two adjoining bolts/studs

- 20.2. It is the Competitor's responsibility to ensure that the above detailed assemblies have bolts studs / flanges predrilled with 3mm holes, to enable wire seals to be affixed as and when required, that will prevent the assemblies from being dismantled.
- 20.3. The position of sealing holes may be rejected by scrutineers if they do not meet the required purpose and are not clearly visible during regular scrutineering checks. Competitors are to seek the advice of scrutineers for clarification.
- 20.4. Championship seals may be applied at any time, at the sole discretion of the Championship Scrutineer.
- 20.5. All applied seals must remain intact for the duration of their application period. A seal remains valid from date of application until 30 days after the last Round of the Series in which it was applied.
- 20.6. Should a Competitor require permission to remove a seal for maintenance purposes, it is essential that prior authorization be sought, that the request is put in writing with written approval granted prior to the seal being removed. All requests to be submitted in writing to the Championship Race Director and Technical Delegate. Upon approval, written confirmation of 'PERMISSION GRANTED' to remove the specified seal will be given.
- 20.7. BMF Seals will remain property of the BMF. Removal of official BMF seals without notification of the Race Director and/or Technical Delegate will result in penalties as per series sporting regulations.

## 21. Judicial In-car Cameras:

- 21.1. Race Organizers may require cameras to be fitted in or on cars for use to resolve inquiries or any other judicial issue.
- 21.2. These cameras must be fitted to ensure a clear view forward, showing both front corners and, if possible, the steering wheel.
- 21.3. These cameras are additional to any cameras fitted by the driver, for private use, or the Championship Promoter. Any additional cameras must not impede the view of judicial cameras which shall have precedence.

## 22. Data Logging

- 22.1. The Organizer shall provide Competitors with a Data Logger that will be set up to connect to the car's ECU to monitor specific data channels and determine actual WHP during practice, qualifying, and race sessions.
- 22.2. The Competitor's choice of ECU is free. The make & model of the ECU must be declared during the Championship registration process. This is to ensure compatibility and proper setup with the Data Logger.
- 22.3. Competitors are required to provide the necessary cable/wire termination points from the ECU to the unit in addition to a power supply. Connectors and wiring diagrams will be shared by the Event Organizers.
- 22.4. The logger unit must be connected to the vehicle to gather data which will then be used to determine the vehicle WHP.
- 22.5. Tampering with the logger unit is strictly forbidden. Under no circumstances should the Competitor or any other person tamper with the Data Logging unit.
- 22.6. Before the start of each practice, qualifying, or race session, it is the responsibility of the Competitor to ensure that the logger is operational. This can be done through visual verification of the Data Logger's indicator lights/screen. In case of any uncertainty or irregularity, Competitors must inform the Technical Delegate prior to exiting pitlane.
- 22.7. A technical directive/Bulletin on installation and use of the Data Logger shall be issued separately.

## 23. Post-Race Compliance Check (PRCC):

- 23.1. Cars will be held in Parc Fermé until authorized for release.
- 23.2. The Technical Delegate will analyze car data from the Data Logger.
- 23.3. Cars will be determined to be:
  - (a) Status GREEN: operating within the required WHP limit; or
  - (b) Status RED: NOT operating within the required WHP limit.
- 23.4. Cars with Status GREEN shall be released from Parc Fermé subject to completion of all the required technical checks.
- 23.5. Cars with Status RED shall undergo the procedures below:
  - a) The Car shall be reweighed, and the new weight shall be used to re-calculate WHP data.

- b) New WHP Result:
- i. **If the new weight and data re-simulation shows that the Car is within the required WHP limit:** car will be considered legal.
  - ii. **If the new weight and data re-simulation shows that the Car is not within the required WHP limit:** the Competitor will be disqualified from the round and will be required to start from the back of the grid for the next race or as determined by the Stewards.
- c) If the car is seen to be having severe mechanical issues that will limit conducting the PRCC, the car will be subject to disqualification, following the determination of the Stewards, from that specific round only.
- 23.6.** Should the need arise, the Stewards may request Competitors to conduct a dyno run (as per Article 24) at the end of any meeting/event/round to verify WHP and/or weight. The selected car(s) will be under Parc Fermé conditions until cleared by the Technical Delegate or Stewards of that specific meeting/event/round. The dyno run(s) will be carried out under the supervision of the Technical Delegate or his/her deputy.

## 24. Dyno Procedures

- 24.1.** Dyno runs will be conducted through a BMF recognized dyno service provider. The recognized dyno service provider will be announced via Bulletin 30 days before the start of the race season.
- 24.2.** Under all circumstances dyno operator(s) are the only personnel permitted to operate the dyno.
- 24.3. Standard Dyno Procedures:**
- a) The Car must be strapped to the dyno. The removal of aero component(s) is permitted.
  - b) The hood/door(s)/boot must be in a closed position.
  - c) Tire pressures to be set at 35 psi.
  - d) SAE Correction J1349 dyno must be used.
  - e) Engine/transmission must be at operating temperature.
  - f) Three (3) back-to-back dyno runs will be carried out.
  - g) The highest recorded WHP from the 3 runs will be considered as the car(s) peak horsepower.

## 25. Disparity Equalization Approval (DEA):

- 25.1. With the notion of removing cost and performance part(s) availability obstacles faced with certain car builds, the Championship organizers will grant waivers to certain contraventions of these Technical Regulations.
- 25.2. Competitor/Entrant will apply for a dispensation to the organizers for his/her particular car explaining the issue with the performance/reliability of the car and how he/she intends to resolve it.
- 25.3. The issue and solution will then be put to a committee made up of the CRC technical team permanent Steward, Race Director, and Technical Delegate.
- 25.4. Three nominated Competitors/Drivers who have a sound technical understanding. Members are to be selected upon issuance of the regulations. The nominees should:
- a) Be taking part in the current season; and
  - b) Demonstrate acceptable technical competence.
- 25.5. Applications may be put forward under one of the following:
- a) An Inherent Design issue which impedes the cars competitiveness.
  - b) An Inherent Design Flaw which impedes reliability and leads to excessive cost.
  - c) Scarcity or excessive price of original parts
  - d) Safety
- 25.6. The committee's feedback will be given within a maximum period of two weeks. This duration is subject to the requirement of additional information or the need for further consultation.
- 25.7. Once the Competitor has applied for the dispensation and the committee has met, a decision will be given on the application. If the application is approved, a DEA document will be drawn up for that requested modification.
- 25.8. On approval of modification the Competitor must re-submit his car for scrutineering to ensure that all modifications have been carried out safely and according to the any supplementary regulations applied.
- 25.9. Organizers reserve the right to restrict cars that gain an added and unfair performance advantage, in any way they deem appropriate, to bring the car's performance in line with the other cars on the grid. This will only apply to cars which have gained an advantage through a DEA. Cars built to the standard regulations will not be restricted in any way other than the standing regulations.



25.10. The decisions of the committee shall be final and are not subject to protests and/or appeals.

25.11. In cases where a conflict of interest is apparent, an "Abstain" vote will automatically apply to the member in question.

25.12. DEAs expire at the end of each season.

25.13. Should the competitor obtain DEA committee approval regarding his/her dispensation, under no circumstances should the competitor assume to carry out other modification not in-line with the BIC Challenge Technical Regulations, other than what was stated in the supplied dispensation request.