



2020

Technical appendix

CHAPTER 3 – TECHNICAL APPENDIX

EVERYTHING THAT IS NOT AUTHORISED AND PRESCRIBED IN THESE RULES IS STRICTLY FORBIDDEN

The responsibility for the eligibility of vehicles in the championship rests with the competitor. In the event of a dispute concerning the compliance of a vehicle with the regulations, the responsibility lies with the competitor to satisfy the organizer with regards to such compliance and not the organizer to prove non-compliance.

Art.34 – INTRODUCTION

Drivers and cars must conform to the technical regulations throughout all qualifying and race sessions. Drivers and cars found not to be in conformity with technical regulations may be subject to penalties.

Art. 35 – ELIGIBLE VEHICLES AND ENGINES

All cars (chassis') must be series production models imported into Qatar with:

- Normally aspirated engines with a maximum capacity of 2000cc
- Forced induction engines with a maximum capacity of 1650cc

Cars must be belonging to a production series distinguishable by specific nomenclature, the same basic floor pan, external body work and identical engine and transmission from the engine to the wheels (except that both manual and automatic gearboxes may be utilised). Bodywork variations concerning number of doors, hatchback or boot are permitted and will be considered to be of the same model range. Both left and right-hand drive vehicles are acceptable.

Convertible cars equipped with approved roll cage (Art. 253-8 FIA Appendix J) are accepted with a closed face helmet.

The engine may be changed Art7.7

The engine must be from the A2 category (see appendix: Allowed engines).

- o up to 2000cc & Supercharged up to 1650cc
- o Diesel up to 2000cc

Art.36 - SCRUTINEERING GENERAL:

36.1 – All entered vehicles must be presented for visual examination and weighing in nominated location, at the time stated in the event timetable. **Presentation is a statement of conformity.**

36.2 – Competitors must report for scrutineering with their vehicles clean and complete in **all respects**. Vehicles which do not meet these criteria will not be accepted for inspection by the technical steward and may be subject to a late scrutineering fee.

36.3 - Competitors must ensure that their cars comply with the conditions of eligibility and safety throughout practice and the race in accordance with the technical regulations.

36.4 - All participants must submit the homologation form for the roll cage to scrutineering who will keep it throughout the entire event.

36.5 - Scrutineers have the right to:

- a) Check the eligibility of a car or of a competitor at any time during the event.
- b) Require a competitor to supply them with such parts or samples as they may deem necessary.

36.6 - No car may take part in the event until it has been passed by scrutineering.

36.7 - Helmets and Hans devices meeting requirements will be issued with an identification sticker. Once a car has passed the safety and technical requirements it will be issued with an identification sticker. These stickers **MUST NOT** be removed or covered. Entrants will not be allowed to exit the pit lane onto the track without displaying these.

36.8 – If any vehicle, after being approved by the Scrutineers, is dismantled, modified, or involved in an accident or incident, the car must be re-presented for scrutineering.

36.9- All cars must be presented after Qualifying Practice and the Race for Weight and/or fuel checking. Failure to present the car will lead to sanctions from the stewards.

Art. 37 - SAFETY REQUIREMENTS

The following safety requirements are **compulsory** and must be presented at Initial Scrutineering.

37.1 - DRIVER

1. **Helmet:** Must meet FIA approved standards for helmets. Drivers of convertible models running with-out hard-top must wear a FIA Homologated full-face helmet.
2. **Racing suit:** Must meet FIA approved standard 8856-2000 for homologated racing suits & boots. FIA Technical list No. 27 (section 1).
3. **Undergarments:** Must meet FIA approved standards 8856-2000. FIA Technical list No. 27 (section 2).
4. **Gloves:** Must meet FIA approved standard 8856-2000. FIA Technical list No. 27 (section 3).
5. **Hans Device:** Must meet FIA approved standard 8858-2002. FIA Technical list No. 29 (**Only to be used with Hans compatible seat**).

37.2 - CAR: Good, clean general condition with no loose body work. Compulsory advertising, stickers, and number plates must be present and correctly placed, including driver's name and blood type.

All competing cars must be professionally turned out.

1. **Towing point:** Front and/or rear towing point or hook must be present to assist in the rapid removal of cars from the track in the event of an accident or breakdown.
2. **Seat:** Must meet FIA approved standard 8855-1999. FIA Technical list No. 12
3. **Harness:** Must be correctly installed and meet FIA approved standards 8853/98 and 8854/98. FIA Technical list No. 24
4. **Roll cage:** Must meet FIA standards for roll cages. FIA Appendix J Article 253. (bolt-on or welded FIA Homologated rolls cage can be accepted). If the roll cage does not meet this requirement and the certificate is not produced, then the car will not pass technical control and will be refused entry to the track.
5. **Roll cage padding:** Must meet homologated standard 8857-2001 Type A. FIA Technical list No. 23. If the roll cage padding does not meet this requirement then the car will not pass technical control and will be refused entry to the track.
6. **Fire extinguisher:** Must be charged and secured in a place accessible to the driver when strapped in, and to any officials. The minimum size being 1kg. If plumbed system is being used it must meet FIA standards for plumbed-in fire extinguisher systems. FIA Technical list No. 16
7. **No oil leaks are permitted.**
8. **No water leaks are permitted.**
9. **Battery** must be secured. If it is located within the body compartment, it must also be within a sealed container to prevent the spillage of acid. Dry battery types must be electrically protected.
10. **No loose items in the interior are permitted.**

Art. 38 – ADDITIONAL SAFETY REQUIREMENTS AND SEALS FOR PRODUCTION CLASS

38.1 - OIL CATCH TANK: Catch tanks must be fitted in the engine compartment and must be of 2 litres capacity. The tank must be translucent or have a panel through which the level may be observed. Alternatively, the standard closed breather system must be in operation.

38.2 - DRAIN PLUG AND OIL FILTERS: Drain plugs must be wired and oil filters must be clamped to prevent loosening.

38.3 - REAR VIEW MIRRORS: External units must be fitted, one on each side of the car with a minimum area of 90 cm² per unit. An interior rear-view mirror must be in place.

38.4 - CIRCUIT BREAKER: A circuit breaker, capable of being operated from **both inside and outside** the vehicle, must be fitted to one of the main battery cables. **Its position must be clearly marked on the outside by a red spark on a white-edged blue triangle having a base of at least 120mm.**

38.5 - ADDITIONAL/ REPLACEMENT FASTENINGS: The bonnet and boot lid may be secured with extra fastening devices. If the bonnet or boot lid are replaced (non

standard) then extra fastening devices MUST be used. Any, and all, original bolts and fasteners may be replaced with upgraded components.

38.6 - AIRBAGS: All airbags must be disabled or removed.

38.7 – FLUID LINES/ CABLES: Fuel and oil lines, brake pipes and cables may be protected against damage and internally against fire risk. It is recommended that all flexible pipes be replaced with Aeroquip-type hoses.

39.0 - WEIGHT:

Engine capacity (normally Aspirated)	Minimum weight
1801 to 2000cc	1150kg
1601 to 1800cc	1050kg
1401 to 1600cc	950kg
Engine (Forced Induction)	
Upto 1650cc	1270kg
Peugot RCZ 1600cc	1270kg

Minimum weight is car with driver only (inclusive of full race equipment)

39.1 - PERFORMANCE BALLAST

- Ballast is allocated according to the results from the previous race and is updated per race.
- For race two, ballast is allocated according to the finishing positions in race one.
- The weight is allocated as follows,
 - o **1st: 48kg**
 - o **2nd: 36kg**
 - o **3rd: 24kg**
 - o **4th: 12kg**
- The minimum weight will be the minimum weight + ballast amount
- The full nominated ballast + ballast box must be carried even if the car exceeds the minimum weight.
- It is the drivers' responsibility to ensure that the ballast is securely fitted, and that the car meets the minimum weight limit at all times.

The weight must be fitted in the championship specified FIA approved ballast box.

39.2- BODYWORK – EXTERIOR

- All doors, as well as the boot and bonnet, must fit in the designed position when closed and must conform to the original contours of the vehicle.
- All **external** bodywork panels must be in place, including splash panels and panels behind the bonnet covering windscreen wiper mechanisms. Where it can be justified to the Technical Steward, original metal or plastic panels may be replaced by fibreglass units.
- Fog, spot, or auxiliary lights may be removed as may any manufacturer provided 'knock out' panels below the front bumpers for the fitting of auxiliary

lighting, and the apertures may be utilised for ducting. A maximum of 5 holes of up to 50mm dia. Each or equivalent area may be made in the bodywork below the top line of the front bumpers for ducting.

iv) Bonnet may be modified to include one or more air intake or cooling vents. The height of any duct may not exceed 100mm above the bonnet line.

v) Body panels may be replaced with alternate materials. Carbon fibre or fibre glass may be utilised. Replacement panels must maintain the standard silhouette and mounting points for the model being raced – excepting – wide arches (flares) and fenders are allowed to be added.

vi) Front splitters/air dams/chin spoilers may be used provided they are bolted or riveted to the vehicle (glue or tape is NOT acceptable). These devices can be of plastic or composite material including carbon fibre. The device must not extend rearward more than the front of the wheel well opening or protrude further than 100mm beyond the most forward part of the vehicle bodywork when viewed from a perpendicular angle. It is the driver's responsibility to ensure that the car does not touch the racing surface during normal track usage and that the car can be weighed using the championship scales within 5 minutes of the technical Director or his appointed staff requesting the car for weighing (n.b. the weighing scale pad height is 67mm).

If the car is not weighed in this time it will be considered to have failed the weight test. **It IS NOT the responsibility of the technical control staff to lift the car onto the scales, it is the responsibility of the TEAM ONLY.**

Any damage to the car and its skirts that occur on curbs or upon entering the gravel trap are the drivers responsibility.

vii) Canards, side skirts or any other aerodynamic devices that attach to the body are permitted.

viii) Front and rear diffusers are permitted. The rear may extend forward to the rear of the rear tyre, and the front may extend backwards to the front of the front tyre.

ix) Any rear deck spoiler/wing that attaches to the bodywork is allowed. Rear spoiler/wing must not protrude more than 150mm rearwards of the furthest back part of the vehicle bodywork when viewed from a perpendicular angle, or above the highest part of the roofline. Position and height of rear spoilers/wings on hatchback vehicles shall be reviewed on a case by case basis. Cockpit and/or remote adjustment of the rear spoiler/wing is NOT allowed.

The wings must be securely fitted and mounted only to bodywork suitable for the forces involved.

x) Underchassis aerodynamics are PROHIBITED.

xi) Brake cooling ducts may originate where auxiliary lights were fitted/were designed to be fitted. The removal or repositioning of head lights, parking lights or indicators is not permitted. Holes may however be cut in the front bumper/spoiler/headlight, to facilitate brake cooling. Such holes may not exceed 50mm in diameter.

39.3- BODYWORK – INTERIOR

All additional accessories and equipment which would have no effect on the performance of the vehicle are allowed without restriction on the express condition that they do not influence, in the opinion of the Technical Steward, even in a secondary manner, the efficiency of the engine, transmission, steering, braking, road-holding or the strength of the structure of the vehicle. In particular the following are allowed:

- i) Additional measuring instruments, counters, etc. may be freely installed in place of the standard units.
- ii) The driver's seat must be replaced by an FIA-approved racing seat.
- iii) Any type of steering wheel, including one of the quick-release types, may be fitted.
- iv) Central locking systems must be disconnected. They may be removed in their entirety and replaced with manually operated door locks.
- v) Electric window winding mechanisms may be replaced by manual systems.
- vi) Steering lock systems must be removed.
- vii) Windows - All glass windows, with the exception of the windscreen, may be replaced with polycarbonate substitutes. The windscreen must be of laminated glass. All windows (regardless of material) must be fitted so as to retain the appearance of the standard fitment. Polycarbonate windows, if fitted, must be 'bonded' in place. The driver's door window must remain operational using manual or electric mechanisms or must have an aperture that allows driver to make hand signals. Any standard windows must be laminated internally with clear film.
- viii) Spare wheel/s, tools and jack must be removed.
- ix) It is permitted to remove all interior trim, including hood linings, passenger seats, carpets and sound deadening materials. The original dashboard and instrument cluster surrounds must remain in place. The doors must be clad, to obscure the window winder mechanisms. The method of cladding is free, as long as it is neatly presented.

39.4 - ENGINE:

1. The homologated engine design model cannot be changed.
2. Homologated parts and castings for the crankcase, cylinder, cylinder head and gear-box (bell) housing must be used.
3. The original flexible material of the engine, gearbox and differential housing mountings may be changed, but the number of mountings must remain the same and the engine, gearbox and differential must remain in the same relative (front/rear/mid) position relative to the body shell.
4. The finish of engine components is free (Superfinishing, DLC etc)

Turbo Engines:

1. All engine parts must remain standard – none of the modifications from 3.9.4.1 onwards are allowed.
2. Turbo, wastegate, intake manifold must remain as standard.
3. Boost pressure must remain as standard.
4. Airbox is free.

39.4.1 – TOP END:

1. Bore can be up to 0.5mm diameter oversized.
2. The method of valve retention must remain as the homologated model. No pneumatic valve retention devices are allowed unless fitted to the homologated model.
3. The sequence in which the cylinders are ignited (i.e. 1-2-4-3), must remain as originally designed on the homologated model. Simultaneous firing of 2 cylinders is also forbidden if not adopted on the homologated engine.
4. Cylinder Head must be the original casting but maybe machined or 'ported'

5. The ports may be filled with epoxy products
6. The gasket face may be machined.
7. The valve guides may be machined or replaced
8. The compression ratio is free.
9. The combustion chamber may be modified.
10. Valves, springs, retainers, rockers, followers and associated parts are free.
11. Valve seats can be modified or replaced for repair. The material must remain as homologated.
12. Valve guides are free.
13. Valves must remain in the homologated location and at the same angle as the homologated valves.
14. The homologated cylinder head / cam cover may be replaced by a cosmetic replica of higher specific weight material (i.e. replace magnesium part with aluminium).
15. Camshaft and pulleys are free
16. The method of cam drive must remain as homologated.

39.4.2 – BOTTOM END:

1. Stroke MUST remain as original.
2. Crankshaft, connecting rods, rod bolts, shell bearings, pistons, piston Rings, Piston Pins are free.
3. The top face of the cylinder may be machined to adjust deck height.
4. Baffles may be fitted in the sump to prevent oil surge. The fitting of engine oil surge protection devices (consisting of a reservoir for oil that is charged when the engine oil pressure is high and discharged into the engine's oil system when the engine oil pressure is low) is also permitted. The sump may be increased in size and altered in shape. The sump drain plug must be wire-locked to a fixed point.

39.4.3 – TRANSMISSION:

1. The transmission configuration must remain standard for the vehicle e.g. front engine rear wheel drive, front engine front wheel drive etc. and the engine and transmission must remain in the same position relative to each other as the manufacturer's original specification. Four-wheel drive and conversion of four-wheel drive to two wheel drive is not permitted.
2. Gearbox casing, bell housing and drive shaft (if applicable) must be from the same manufacturer as the engine.
3. In cases where a retro fit engine is fitted, gearbox must be of the same manufacturer as the engine being raced.
4. Gear ratios and final drive ratios are free
5. Sequential transmission and dog boxes (and any variants) are NOT allowed.
6. Driveshafts are free
7. Hubs are free.
8. Automatic transmission is permitted as long as it is standard production specification.
9. Fitting of Limited Slip Differentials is allowed
10. Electronic control – see 39.5

39.4.4 – COOLING SYSTEM:

11. Water cooling hoses, belts, flow restrictor, thermostats and radiator caps are free. The standard water radiator may be replaced, but its position must be retained and no alteration to the standard under bonnet sheet metal is permitted. Additional water radiators may be fitted in non-standard positions, but these may not be external to the bodywork and all bodywork rules must be respected. The addition of ducting components to improve airflow through the radiator is permitted.
12. Heaters and air conditioners may be removed in their entirety.
13. Oil coolers may be fitted (for engine oil, gearbox oil, differential oil or power steering fluid, subject to their installation being of a satisfactory standard. Devices that spray water, or any other fluid or gas, (as a cooling agent) onto the outer surface of any supplementary cooling device fitted to competing vehicles (including oil radiators, water radiators and intercoolers), are not permitted.
14. Heat shielding of engine or manifold components is permissible from the engine block to the bulkhead. Shielding may be of manufacturer standard shielding plate or by heat shield wrap.

39.4.5 - OTHER:

1. The power steering pump and ancillaries may be removed or changed but the original mechanical steering mechanisms must be retained
2. Air filters are free of restriction (including position).

39.4.6 – INTAKE/INJECTION:

1. Throttle bodies may be changed:
 - i. For GT86/BRZ type engines the number of throttle bodies is free
 - ii. For all other engine types only a single throttle body may be used
2. Manifolds are free provided they fit directly to the original port faces of the cylinder head..
3. Fuel injectors are free
4. Fuel pumps and regulators are free of restriction, including filters and fuel lines.
5. Velocity Stacks / Air funnels are free
6. Variable intake tract devices cannot be added if they are not present on the homologated vehicle. They may be removed and replaced with fixed intake devices but if retained they must remain identical and operate in the same way as original
7. Air box is free

39.5 - ELECTRONICS:

1. Wiring looms are free
2. Sensor units are free
3. ECU (including ancillaries as ignition drivers/modules) are free (allowing replacement or OEM reflashing)
4. Data-Logging is free
5. Track to team telemetry is not allowed (onboard video streaming is allowed)

6. Electronic torque biasing systems or electronic differential controls are prohibited
7. Traction control, launch control and driver aids are allowed
8. Spark Plugs are free
9. Coils and HT leads are free
10. Any type of battery allowed. Its position in the car is free from restriction, provided that if a wet lead acid type battery is retained and positioned in the driver/ passenger compartment, it is not only secure, but must be contained in a sealed compartment. Dry battery must be electrically protected.
11. Breakers – see 38.4
12. External lighting systems, including dip or high beam headlight, tail lights, stop lights and turn indicators must remain functional.

39.6 – FUEL TANK:

A safety or foam-filled bladder tank may be fitted in place of the standard tank, subject to the fitment of any such unit not causing any other regulation/s to be contravened. The replacement tank may not have a capacity in excess of 5 litres more than the standard tank. The standard fuel tank may be baffled or filled with suitable foam material to prevent fuel surge. It is also permitted to fit an anti-surge tank within the fuel system. Where part or all of the fuel system is located in the passenger/drivers compartment, the component parts must be of a high quality safety standard, braided hoses secured with ferrules (not clamps), with well-engineered and fabricated anti-surge tanks to meet the approval of the technical consultant. Replacement fuel tanks must have a clearly visible certificate.

39.7 - EXHAUST SYSTEM:

- 1) Aftermarket manifold systems are permitted. Pipe is free from restriction provided that it follows a similar route to the standard system and exits at the rear of the car. Single outlets are however permitted in place of dual outlets, and vice versa.
- 2) The position of the lambda sensor is free of restriction.
- 3) Catalytic converters may be removed and replaced with suitable exhaust piping.

Vehicles must at all time during an event be silenced to meet a maximum level of **125 DB (A)** at $\frac{3}{4}$ maximum RPM, measured at 0,5 meters from the end of the exhaust pipe with the microphone at exhaust outlet level at an angle of 45 degrees. Where more than one exhaust outlet is present the test will be repeated for both outlets and the higher reading taken.

The inclusion of temporary parts to achieve requirements is prohibited.

39.8 – SUSPENSION:

- 1 Anti-roll bars (stabiliser bar/ Sway bar) and their attachment links are free.
- 2 Strut tower braces are free.
- 3 The material of the suspension mounting bushes is free of restriction, including the use of spherical bearings, provided they are fitted to the suspension components without any additional machining of the suspension components.
- 4 Springs are free of restriction but must be made of steel. Bump rubbers are free of restriction.
- 5 Shock absorbers are free of restriction, including their method of fixing, provided that the attachment points are not changed. The original spring seat may be removed. Coil-over shock absorbers, where not a standard fitment, may be fitted.
- 6 Ride height is free.

39.9 - BRAKING SYSTEM:

The brakes may be retained or replaced/upgraded subject to the following:

1. All callipers (front and rear) are free of restriction, excepting that they may have a maximum of 4-pistons and must be made of a metal alloy (no composite or metal matrix materials are permitted);
2. Only one calliper is permitted per wheel;
3. Permitted brake piston material is restricted to steel, stainless steel or aluminium only.
4. Brake disc/rotors may be replaced with no size restriction.
5. Brake disc/rotors must be of ferrous metallic material (ie no carbon, aluminium, ceramic or other 'exotics')
6. Brake discs/rotors may be skimmed.
7. Brake discs/rotors may be slotted/cross-drilled or vented
8. Brake bells are free provided they are made from aluminium or ferrous metal. Attachments are free of restriction;
9. No titanium components of any nature are allowed in the braking system.
10. Brake pad material is free.
11. Protector plates/dust covers may be removed or modified.
12. Ducting is permitted to the front brakes to facilitate cooling. Only air may be used as a cooling medium.
13. Servo brake assisters and braking force adjusters (pressure limiters) may be disconnected and removed.
14. Hand brakes and their systems must be retained.
15. A pressure line proportion valve may be fitted to the rear braking system only.
16. The standard ABS system may be used, removed or replaced. Substitute ABS systems may be used.

39.10 - WHEELS:

Wheel rims are free of restriction within the following dimensions and must be manufactured from steel or aluminium only.

Wheel diameter has a maximum of 18".

Wheel studs may be used in place of bolts.

Wheel nuts must be open-ended. Wheel spacers are permitted.

39.11 - TYRES: - Only TOYO R888R or TOYO R888 semi-slicks are accepted.

There is no tyre usage limit.

If a control tyre is agreed, then it will be announced in a supplementary publication at least 6 weeks before the first racing event of the season.

39.12 - FUEL: - Fuel will be specified in in a supplementary publication at least 6 weeks before the first racing event of the season.

39.13-UNSPECIFIED MODIFICATIONS The organiser reserves the right to authorise modifications not specified in these regulations in the interests of promoting close racing and the interests of the series. The driver's representative must be involved in the discussion before to any changes are made unless it's a safety issue.

40- OIL SPILLAGE

Any competitor who puts oil on the track through negligence will be liable for any expenses incurred by the organiser. Additional penalties may also be imposed by the organiser.

