



MOTORSPORT SOUTH AFRICA NPC

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MSA NATIONAL GTC CIRCULAR 3 OF 2016

The following circular contains the 2016 National Global Touring Car (GTC) Technical Regulations

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MOTORSPORT SOUTH AFRICA IS THE ONLY RECOGNISED MOTORSPORT FEDERATION IN SOUTH AFRICA



sport & recreation
Department
Sport and Recreation South Africa
REPUBLIC OF SOUTH AFRICA

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TECHNICAL REGULATIONS

1. GENERAL

- 1.1 Before commissioning the first unit of a new vehicle make, the entrant must receive the agreement in principle from the GTC Commission (GTC) by submitting a specification and sketches/photographs of the proposed vehicle. The entrant must elect a model of a vehicle in the production range on which the competition vehicle will be based, as well as the engine from the Manufacturer to be used. The details of the model of vehicle and engine will be entered in the Vehicle Technical Passport.

Model of vehicle:

Vehicles belonging to a production-series distinguishable by a specific concept and external general lines of the bodywork and by an identical mechanical construction of the engine and the transmission to the wheels, with the same wheelbase and the same cubic capacity. To qualify as a model, the vehicle should have been produced and sold in quantities exceeding 1000 in one year in commercial dealer outlets in South Africa.

- 1.2 Safety will always be a top priority with the GTC, and unsafe vehicles, at the sole discretion of the GTC Technical Delegate (TD) will not be allowed to compete.
- 1.3 All components provided by the Series, an Authorized Manufacturer or Supplier must be used as provided, unless otherwise stated in these rules or in update circulars. All original manufacturer identification markings and/or tags must remain as supplied. For avoidance of doubt, these rules currently provide for no modification of any component.
- 1.4 Competitors are reminded that the onus rests on the entrant/competitor to ensure that the vehicle always complies in full with the Technical Regulations. Refer MSA GCR's 93 and 176. Ignorance of the law will be no excuse.

GCR 226 INTERPRETATION OF REGULATIONS AND SPECIFICATIONS

In interpreting motorsport regulations and specifications "what is not specifically permitted is disallowed" is the normal concept in keeping with the French regulations on which all motor sporting regulations are based.

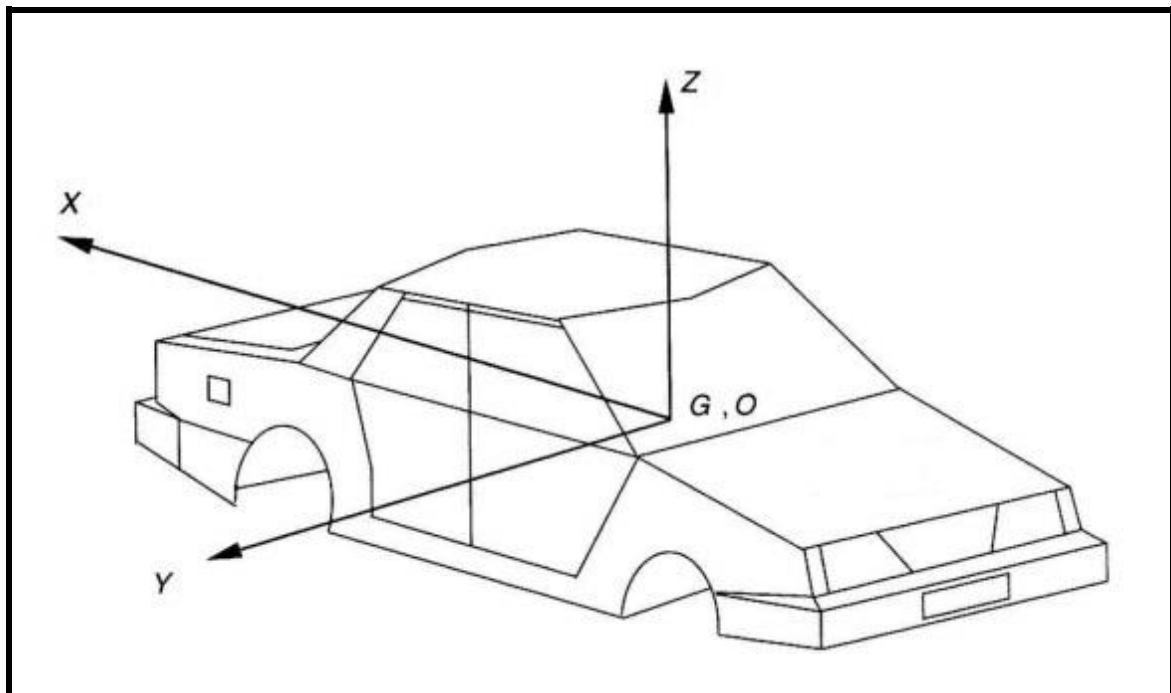
- 1.5 The only binding means of communication shall be in writing.

2. TECHNICAL INSPECTION

- 2.1 The responsibility remains with the Entrants to make sure cars conform to all rules throughout an event. All car parts and equipment must complete technical inspection as and when required by the GTC TD to be eligible for an event. Officials may inspect all items for conformity of the rules at any time. Completion of technical inspection does not guarantee against disqualification or other penalty if any violation is discovered during any subsequent inspection.
- 2.2 Officials may impound or confiscate a car, part, equipment, item or data associated with a car, driver or entrant, or exchange common parts between cars. In the event of damage or undue wear and tear on an exchange part, the previous owner will be liable for repair costs to bring the part back to serviceable condition.
- 2.3 Certain components will be sealed or marked and registered by the GTC TD, and may be inspected for regulatory conformance at a later date. Should the seal be broken or tampered with in any way without the GTC TD's instruction and supervision, the competitor will be excluded from the event, and will lose all championship points backdating to the fitting of the seal. In the case of unmarked or differently marked components being found on a car which should have been marked as recorded, the above exclusion penalty will apply.
- 2.4 The technical passport as supplied by the GTC must be submitted to technical inspection at the start of any on-track event for the chassis entered.
- 2.5 Officials may examine any car involved in a crash and determine if it is suitable for further participation and all members shall co-operate in the preparation of damage reports, photographs, videotaping and impact recording analysis. Any entrant refusing to follow the prescribed inspection procedures may be penalized.
- 2.6 Decorative plating (chrome plating, galvanizing, anodizing, etc) may not be used on any structural metallic parts, unless supplied as such by GTC. All parts which are painted, plated or coated must be stripped before non-destructive testing and inspection.

3. REFERENCE PLANES & COORDINATES

- 3.1 All measurements shall be taken from the reference plane or origin of coordinates. These shall be established by GTC and cannot be modified. References will be measured using the following coordinates:
- 3.1.1 The X-axis is defined as the longitudinal axis front to rear. The zero X-coordinate is defined as the front face of the engine mounting vertical bulkhead in the chassis. The positive direction is rearwards from zero.
- 3.1.2 The Y-axis is defined as the lateral axis left to right. The zero Y-coordinate is defined on the longitudinal centreline of the car. The positive direction is to the right from zero.
- 3.1.3 The Z-axis is defined as the vertical axis from the ground upwards. The zero Z-coordinate is defined as the horizontal plane formed by the lower surfaces of the underfloor rectangular tubing frame. The positive direction is upwards from zero.
- 3.2 For purposes of technical inspection, the chassis reference planes and origin will be marked on each chassis where applicable. These reference points may not be modified in any way. Chassis damage will be addressed on a case to case basis.
- 3.3 Vehicle Axes:



4. VEHICLE DIMENSIONS

- 4.1 All dimensions are measured in mm and must remain within the following tolerances.
- 4.1.1 Length: 4686mm \pm 20mm (including front splitter and rear wing)
- 4.1.2 Maximum body width: 1850mm (excluding external rear view mirrors)
- 4.1.3 Maximum track width - determined by body width. Upper half of all the wheels to be covered by the fenders in plan view and in the straight ahead steering position. Car in race trim with fuel and driver.
- 4.1.4 Wheelbase: 2726mm \pm 20mm
- 4.1.5 Roof height: BMW: 1140mm; Audi: 1120mm; Jetta: 1120mm \pm 10mm, measured vertically from the top of the driveshaft tunnel to the highest point inside the roof.
- 4.1.6 Maximum underwing width: 1400mm inside end plates
- 4.1.7 Underwing height: *t.b.a.*mm (measured vertically from Y=0 to)

5. WINGS

- 5.1 Both front splitter and rear wing must be run at all events in exactly the location and configuration as specified by GTC. All references are measured from the reference planes.

6. BODY & CHASSIS REPAIRS

- 6.1 All repairs must conform to the Manufacturer's original design criteria including weight.
- 6.2 Structural Repairs - Chassis/Safety Cage structural repairs may only be made by the GTC or a GTC appointed supplier as required by FIA app J art 253. The GTC Technical Consultant (TC) in his sole discretion will determine whether components are repairable or must be replaced, based on specific safety criteria. Once any component is deemed non-repairable the ID tag number will be deleted and can no longer be used.
- 6.3 Repairs to other remaining body components not listed above may be performed by Teams or by alternate repair companies provided the original shape and design is maintained.
- 6.4 Remanufacturing of any component around the ID tag is not permitted. Completely re-skinning or manufacturing a new part from a mould is not permitted.
- 6.5 Teams are permitted to repair or have components repaired provided they adhere to the following:
All structural and sealed/marked mechanical repairs must be declared beforehand to GTC on the provided declaration form before returning to use, subject to the TD's approval. Declaration is not required for normal service and maintenance. If in doubt, ask.

7. FASTENERS, HOSES & FITTINGS

- 7.1 All fasteners must be in place and operational, and must conform to the required specifications. Tape is not permitted as a single source of attachment for any component. Cable ties may only be used for non-structural applications.
- 7.2 Hoses and fittings of acceptable specification may be individually sourced by teams.
- 7.3 Oil hose diameters may not be downsized from the GTC specification.

8. WEIGHT

- 8.1 The minimum weight of the car at the end of a race includes fuel, all lubricants and coolants, as well as the driver equivalency weight. Minimum weights are as follows:
- 8.2 All drivers will be ballasted to a weight of 100 kg. Any driver weighing less must add weight as decided by GTC to the car in the location required by GTC. This shall be known as the driver equivalency weight. All ballast shall be installed with GTC TD present, who shall apply a seal once fitted.
- 8.3 Minimum weight and front - rear distribution will be determined by GTC and may not be altered. Minimum weight means "not less than". Front to rear weight distribution will have a 1% tolerance on weight per axle. All cars will have the same minimum weight, including equivalency weight.
- 8.4 Drivers will be weighed at random and teams may be requested to adjust the chassis or driver equivalency weight at any time.
- 8.5 Any entrant not following the guidelines regarding chassis and driver equivalency weight will be subject to penalties.

9. COCKPIT

- 9.1 Cockpit regulations are intended for the best interests of the driver's safety, comfort and posture. These must be adhered to in the fullest.

10. SEATING/BELTS/HANS

- 10.1 Seats and seat supports must conform to FIA standard 8862-2009 tech list no 40, and installed as per FIA app J, art 253.16 requirements. All seats and supports will be inspected and approved by GTC before use and are subject to re-inspection at any time.
- 10.2 An FIA approved seat belt with a turnbuckle release mechanism must be used as specified in FIA standard 8853/98 technical list 24, and installed as per FIA app J, art 253.6 requirements. The life of the belts shall not exceed 5 years and must be date stamped by the manufacturer.
- 10.3 Seat belts must be worn in such a manner that they are tight and pass around the pelvis at a point below the anterior superior iliac spines.
- 10.4 Seat belts must not pass over the sides of the seat. They must pass through the seat at the bottom on each side thereby wrapping and holding the pelvis over the greatest possible area.
- 10.5 Frontal Head Restraint Systems must conform to FIA standard 8858-2010 as per FIA technical list no 29.

11. MIRRORS

- 11.1 The standard OEM door mirrors must be used.
- 11.2 The inside rear view mirror as supplied by GTC is mandatory.

12. WINDSCREEN AND SIDEGLASS

- 12.1 Standard OEM glass to be used all round with its standard OEM fitment methods.

13. FIRE EQUIPMENT

- 13.1 Fire equipment provided by the chassis manufacturer must remain in the designated locations. The onboard extinguisher must remain active.

13.2 Fire Extinguishers

All vehicles must be fitted with a minimum of one on-board piped fire extinguisher and one handheld fire extinguisher.

The on-board fire extinguisher as supplied by GTC is mandatory and shall comply with FIA Art 283-2014, article 7 and technical list no 16 as fitted.

The handheld extinguisher is to be fitted in the crew compartment in a place accessible to the driver normally seated with safety harness fastened. The handheld fire extinguishers shall comply with SABS 1910 for the extinguisher cylinder with a minimum capacity of 1,5kg DCP (dry chemical powder) extinguishant. The extinguishant shall be MAP (mono-ammonia-phosphate), containing a minimum of 70% MAP in the DCP (Note the 70% is higher than the industry standard 40% and is available). The DCP shall comply with SANS 1522.

All extinguishers must be secured by a minimum of 2 screw-locked metallic straps and the securing system must be able to withstand a deceleration of 25 g in the three normal directions. Furthermore, only quick-release metal fastenings with metal straps will be accepted.

The following information must be visible on each handheld extinguisher:

- capacity
- type of extinguishant
- weight or volume of the extinguishant
- date the extinguisher must be checked, which must be no more than one year after either the date of filling or the date of the last check, or corresponding expiry date.
- each extinguisher must be equipped with a pressure gauge to check the pressure of the contents.

Notes:

1. Fire extinguishers in vehicles should ideally be checked every six months, as the extinguishant can compact with road vibration. Turn upside down to loosen the powder.
2. Anti-freeze in the cooling system should be no more than 50%. The rest should be water to minimise the fire risk of ethylene glycol.

14. ELECTRONICS

- 14.1 Life Racing is the only approved electronics supplier unless otherwise specified. This includes but is not limited to engine ECU, chassis and data looms, data acquisition, sensors, steering wheel and display. Components must be used as supplied without modification.
- 14.2 The approved sensor list for use during race events is as follows:
 - 14.2.1 Damper pots (4)
 - 14.2.2 Steering pot (1)
 - 14.2.3 Wheel speed sensors (4)
 - 14.2.4 Brake pressure sensors (2)
 - 14.2.5 Clutch pressure sensor (1)
 - 14.2.6 Coolant pressure sensor (1)
 - 14.2.7 Gear position sensor (1)
 - 14.2.8 Gearbox temperature sensor (1)
 - 14.2.9 Gearbox pressure sensor (1)
 - 14.2.10 Throttle position sensor (1)
- 14.3 Steering wheel - The steering wheel must be used as supplied by GTC. Modifications are not permitted in any way. This includes all buttons, switches, paddles and grips. The use of additional personal grips are not allowed.

- 14.4 Battery - The only battery approved for use is the one provided by GTC.
- 14.5 The external emergency shutoff switch must be clearly marked using the decal supplied by the GTC.

15. TIMING TRANSPONDER

- 15.1 The timing transponder as supplied by the Race Organisers must be used, and fitted in the specified place.

16. DATA RECORDERS

- 16.1 All cars must run data recorders as supplied by GTC.

17. CAMERAS

- 17.1 Two in-car cameras as specified by GTC must be fitted, and must be operational in the pre-approved location(s).
- 17.2 The GTC may request or confiscate footage from any in-car camera for any reason. This may include driver conduct or technical reasons.

18. SUSPENSION

- 18.1 All suspension as provided by the chassis manufacturer must be used without modification. Adjustment using the adjustable rod-ends is free, provided there is always more than 1½ diameter of thread used.
- 18.2 Toe, camber and castor may be adjusted, provided they are within the chassis Manufacturer's suspension specifications. Anti-dive and anti-squat may be adjusted using different length top hat spacers only.
- 18.3 Ride Control - The use of front and rear ride control (example-3rd springs, dampers) systems are not permitted.
- 18.4 Anti-roll bars must be used without modification as supplied by GTC. They may be adjusted or disconnected, but no parts may be removed.
- 18.5 Rockers must be run as supplied by GTC without modification.
- 18.6 The steering rack must be used as supplied by the chassis manufacturer except:
- 18.6.1 The ECU controlling the electric steering control may be remapped to suit driver preference.
- 18.7 Uprights must be used as supplied and specified by GTC. Wheel bearings as provided by GTC. Hybrid and/or ceramic bearings are not approved for use.

19. DAMPERS AND SPRINGS

- 19.1 The only approved damper which may be used are the Ohlin Dampers as specified and supplied by GTC. The dampers must be run without modification as supplied by GTC. The dampers will be marked and sealed, and will be serviced by GTC only.
- 19.2 Damper configuration is specified and may not be changed. The dampers have external adjusters on the damper body, which may be set by the teams.
- 19.3 Only linear rate steel springs are permitted, and only the rates as specified by GTC.

20. BRAKES AND DUCTS

- 20.1 Brakes must be used in its entirety as supplied by GTC.
- 20.2 Brake calipers must be used as supplied. Any devices designed to push or pull back pistons (other than knock back springs) are not permitted. Caliper seals must be used as supplied by GTC without modification.
- 20.3 There are two brake pad compounds, to be used as supplied without modification. Master cylinder bore sizes are a team sourced option.
- 20.4 Brake fluid is a team sourced option.
- 20.5 Brake ducts - The brake ducts must be used as supplied without modification. Tape is the only approved method for regulating airflow into the brake ducts. Brake ducts are mandatory.

21. ENGINE

- 21.1 The engine as supplied by the manufacturer will be in Group N specification with dry sump and water pump modifications. The engine must be used as supplied, without any modification whatsoever. Any variation from specifications regarding installation, oil and filters, fuel, turbo charger, exhaust or waste

gate will result in race exclusion and loss of championship points. Teams are to follow operating instructions as provided by the GTC engine consultant(EC). The GTC EC will seal all engines before they can be installed in the car. Broken seals without the GTC EC present will result in exclusion and loss of championship points. Should a team want to open an engine for repair, the GTC EC should be contacted, and arrangements made for the GTC EC to be present when the seal is removed. The GTC EC may then check engine specifications. The GTC EC will reseal the engine after repair. The onus is on the Team to ensure the engine is to specification. Refer Art's 2.1 and 2.3. The correct engine number must always be recorded in the Technical Passport.

- 21.2 The engine's drive belts must always be connected and operational.
- 21.3 The engine installation position is as specified in the GTC technical specifications, and may not be modified. Any variation from specifications regarding installation position will result in race exclusion and loss of championship points.
- 21.4 Coolant water - no glycol based additives allowed.
- 21.5 The ECU is controlled, administered and provided by GTC. Software changes will take place under the direction of GTC only. Once set, the ECU will be locked selectively by the GTC TC or appointee.
- 21.6 Inlet Filter - The air filter as supplied by GTC must be used without modification.
- 21.7 Oil catch tank - If the lubrication system includes an open type sump breather, it must be equipped in such a way that the oil flows into a catch tank. This must have a capacity of 2 litres for cars with a capacity equal to or below 2000 cm³, and 3 litres for cars with a cubic capacity of over 2000 cm³. This container must be made either out of plastic or must include a transparent window.

22. RADIATORS/COOLERS

Only the approved radiators and intercoolers specified by GTC may be used without modification. Water, oil and intercooler pipes must remain as supplied except for fitment related issues.

23. TURBO & WASTEGATE

- 23.1 Turbochargers are provided by GTC. These are the only the turbochargers approved by GTC and must be used without modification. The air inlet bellmouth and plumbing is provided by GTC and must remain as supplied.
- 23.2 The wastegate must be used as provided by GTC.

24. DRAIN PLUGS AND OIL FILTERS

- 24.1 Drain plugs must be wired and oil filters clamped to prevent loosening and oil spills.

25. FUEL & FUEL SYSTEM

- 25.1 The only approved fuel is 98 octane petrol conforming to MSA GCR 240 as supplied by the GTC fuel sponsor. See GTC Sporting Regulations and Specifications para 9. Fuel must be stored and used at ambient temperature and no additives whatsoever may be used. Fuel may be sampled and subjected to testing at any time.
- 25.2 The fuel system must remain as supplied by GTC. This includes the fuel pump and filter specifications.
- 25.3 Plumbing of the fuel lines are free, provided the internal hose diameters are not changed. When flexible, these lines must have threaded, crimped or self-sealing connectors and an outer braid cover, resistant to abrasion and flame (does not sustain combustion).
Lines containing fuel or hydraulic fluid may pass through the cockpit, but without any connectors inside except on the front and rear bulkheads according to FIA Drawings 253-59 and 253-60, and on the braking circuit and the clutch fluid circuit.
- 25.4 The fuel tank, fuel pumps and fuel filters must be separated from the driver by a liquid-proof and fireproof protection.
- 25.5 There must be an orifice to evacuate any fuel which may have spread into the tank compartment.
- 25.6 All the fuel pumps must only operate when the engine is running, and during the starting process.
- 25.7 The position and the dimension of the fuel filler hole as well as that of the cap may be changed as long as the new installation does not protrude beyond the bodywork and guarantees that no fuel leaks into one of the interior compartments of the car.
- 25.8 If the filler hole is situated inside the car, it must be separated from the cockpit by a liquid-proof and fireproof protection.

25.9 The ventilation line of the fuel cell as far as the valves described below must have the same specifications as those of the fuel lines, and must be fitted with a system complying with the following conditions:

25.9.1 Gravity activated roll-over valve

25.9.2 Float chamber ventilation valve

25.9.3 Blow-off valve with a maximum overpressure of 200 mbar, working when the float chamber ventilation valve is closed. If the internal diameter of the fuel tank breather venting tube is greater than 20 mm, a non-return valve homologated by the FIA and as defined in Article 253-14.5 must be fitted.

26. EXHAUST

26.1 The exhaust system must be used without modification as homologated by GTC. Internal or external coatings of any kind are not permitted unless otherwise specified by the GTC. The only approved supplier is GTC.

27. CLUTCH ASSEMBLY

27.1 GTC is the only approved clutch supplier.

27.2 The clutch master cylinder bore sizes is a team choice.

28. DRIVESHAFTS & HUBS

Only parts provided by GTC are permitted. These must be used as supplied without modification.

29. GEARBOX

29.1 Use of the Albins gearbox system as supplied by the chassis manufacturer is mandatory.

29.2 The gearbox position must remain as per GTC specification and may not be changed. Any variation from specifications regarding installation position will result in race exclusion and loss of championship points.

29.3 Coatings of any kind or Super Finishing is not permitted.

29.4 Life Racing is the only approved shift mechanism. This must be used without modification and as supplied by GTC.

29.5 All six (6) speeds must remain in the gearbox during on track activity. Reverse must be functional at all times during the race, and the driver must be able to engage it from the cockpit.

29.6 Differential must be run as supplied, and to the GTC specification.

29.7 Accessories - Filters, screens and magnetic plugs are allowed provided they serve no other purposes.

29.8 The bell housing must be used as designed and supplied without modification.

29.9 The starter motor as supplied by GTC is the only approved system for use.

29.10 The alternator drive belt must always be connected and the alternator operational.

29.11 The only gearbox internals approved for use are as follows:

RATIOS	
INPUT	1.000
DROP GEAR	1.091
1ST	2.357
2ND	1.824
3RD	1.474
4TH	1.238
5TH	1.043
6TH	1.000
Final Drive	3.273
Diff Ramps	

30. WHEELS

30.1 GTCC will supply the only approved wheels permitted to be used during all race weekends, series open tests and promotor test days. Wheels may not be modified, and may only be repaired with the approval of GTC.

31. TYRES

31.1 See GTCC Sporting Regulations.



WAYNE RIDDELL
SPORTING SERVICES MANAGER

4th August 2016

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