2012 SVG MOTORSPORT PRE '93 TOURING CAR CHAMPIONSHIP

5. TECHNICAL

5.1 Introduction:

The following technical regulations are set out in accordance with MSA specified format and it should be clearly understood that if the following texts do not clearly state that you can do it, you should adopt the principal that you cannot.

5.2 Description:

5.2.1 Pre-93 Touring Cars are two-wheel drive, four-seater saloon cars marketed before 1st January 1993, of which more than 5000 examples were manufactured in any 12 month period during the overall production run and/or were homologated by FIA for competition in Group N category for production cars prior to that date. All cars are subject to approval of eligibility by the CTCRC Committee and cars not complying with these regulations may be eligible subject to CTCRC Committee approval.

Cars complying with BARC/CTCRC Group One Touring Car regulations are also eligible

- The BMW E36 M3 EVO, Nissan Skyline, Ford Sierra Cosworth RS500 and Ford Escort Cosworth are not eligible for this championship.

- Cars where the number of injectors (excluding secondary idle injectors) is in excess of the number of cylinders are not eligible for this championship.

Cars entered in Class G Production BMW are subject entirely to regulations of section 5a and not otherwise.

The responsibility to prove eligibility is that of the entrant at all times. For clarification of an entrant refer to the MSA Competitors' and Officials' Yearbook . All entrants must produce a Historic Technical Passport (HTP) or Homologation papers stamped by the ASN, where issued,for that vehicle and these must be available for inspection at scrutineering. Where no such paperwork is available, the entrant must produce written confirmation from the CTCRC Committee as to the eligibility of the vehicle model in question. The CTCRC Committee in conjunction with a Licensed Eligibility Scrutineer shall determine matters as to the eligibility and the implementation which may involve photographing any part of the vehicle and performing electrical diagnostics at the scrutineer's discretion.

Unless specifically permitted in these regulations, all components must be to original specification.

5.2.2 Cars will run in eight classes based on production capacity excluding permitted overbore:

Class A	Over 3900cc
Class B	2501cc to 3900cc
Class C	2001cc to 2500cc
Class D	1601cc to 2000cc
Class E	1401cc to 1600cc
Class F	Up to 1400cc
Class G	Production BMW
Class H	Invitation Class

5.2.3.1 Invitation Class – The invitation class is designed to allow cars that, whilst not strictly adhering to the regulations, have been prepared sympathetically to the spirit of the championship and with committee approval may race under observation.

Entrants wishing to run in the invitation class must submit a written specification of the car detailing all areas where the car does not comply with these regulations.

This specification will be made available to the eligibility scrutineers for post event checks. Cars will be approved each season on an individual vehicle basis by the CTCRC Committee and the car must not deviate from the submitted specification unless such changes are approved by the CTCRC committee. Any approval may be withdrawn at any time by the CTCRC committee Invitation class cars are not eligible for overall championship awards .

Cars entered in Class G Production BMW are awarded points and trophies in class but are not eligible to win the overall championship. Class G technical eligibility is subject entirely to regulations of section 5a and not otherwise.

The following rules will also be applied;

- Forced induction engines with 4 valves per cylinder are subject to an equivalency factor of 1.7
- Forced induction engines with 2 valves per cylinder are subject to an equivalency factor of 1.4
- Rotary engines are subject to an equivalency factor of 2
- Naturally aspirated cars 2000cc and over, with 2 valves per cylinder are subject to an equivalency factor of 0.8.

5.2.4 Cars must be presented to a high standard.

5.2.5 Presentation for a vehicle for scrutineering is a declaration by the entrant that the vehicle is eligible for that event.

5.3 Safety Requirements:

All vehicles must be fitted with a safety roll-over structure as defined in the MSA Competitors' and Officials' Yearbook - Section K.

Interior fittings, trim and bodywork may be locally modified to allow fitting of the rollcage and doorbars.

5.4 Miscellaneous:

5.4.1 Vehicles may be brought up to any series production specifications for that model prior to 1st January 1993. For the avoidance of doubt, 'model' shall mean a vehicle of the same bodyshell shape, size, specification and silhouette.

5.4.2 Competitors registering do so in the full knowledge that CTCRC reserves the right to require the Eligibility Scrutineer to carry out, record and enforce eligibility checks which may include the sealing of component(s) for subsequent checking. The costs of such checking shall be borne by the CTCRC but the CTCRC shall not be liable for the costs of stripping or reassembly of vehicles after the checks have been carried out.

5.4.3 Where these regulations call for original components or pattern parts these must be to the manufacturers original specifications for that model as catalogued by the manufacturer or importer prior to 1st January 1993.

5.4.4 Advertising on vehicles is subject to requirements set out in MSA Yearbook H29.1.2 & H29.1.3.

5.4.5 All vehicles must comply with MSA General Technical Regulations and the relevant parts of sections J & Q of the MSA Yearbook except where specified below.

5.4.6 Any component listed on the MSA or FIA (or national equivalent for foreign cars) homologation papers for use in Group ‘N’ during the series production of that model may be substituted for the original production component provided that the substitute part was in production or homologated prior to 1st January 1993. The responsibility to prove eligibility is that of the entrant at all times.

No component may be substituted which serves to alter the shape or size of the bodyshell and/or panels themselves or increases the capacity of the engine beyond that which was in production or homologated prior to 1st January 1993. Optional equipment is to be submitted to the CTCRC committee for possible inclusion on a vehicle by vehicle basis.

- Components homologated for the BMW E36 M3 EVO, Nissan Skyline and Ford Escort Cosworth are prohibited.
- BMW E30 M3 may use parts fitted to Sporting Evolutions of the E30 M3
- BMW E36 M3 may use BMW M-Tech rear spoiler part no 51719402627 or 51712260317. No other rear spoiler is allowed
- Ford Sierra Cosworth may use the RS500 front bumper and RS500 two-element “tea-tray” rear spoiler. All other components homologated solely for the RS500 are prohibited.

5.4.7 Nuts, bolts, washers and locking devices are free.

5.4.8 The original mirrors may be removed but vehicles must be fitted with at least one externally mounted rear view mirror in accordance with MSA Yearbook section Q19.15.1 and at least one interior mirror. The fitment of a wide angle interior rear view mirror is recommended.

5.5 Chassis:

5.5.1 Chassis and chassis members must remain as originally manufactured and lightening or reducing of chassis or chassis member strength is prohibited.

5.5.2 Addition of material to strengthen the chassis and seam welding is permitted.

5.5.3 Minimum ground clearance without driver is 60mm.

5.5.4 Steering wheels and steering columns are free.

5.5.5 Foot controls and their linkages are free except that the foot operated surface of the brake pedal must be located no more than 4" (100mm) forward or rearward of the original production position.

5.6 Bodywork:

5.6.1 Bodywork must be complete and standard in shape and silhouette, material and thickness on all exterior surfaces including all light lenses except that bonnets, boots and spoilers may be replaced with fibreglass replicas and any non metallic panel may be replaced with a fibreglass replica. The original steel bonnet or boot may be modified to reduce its weight providing that the visible exterior surface remains as manufactured. Where original materials are unobtainable, local repairs of adequate strength may be made using modern equivalents. Replacement of panels with non-original material is otherwise prohibited. The removal of exterior decorative strips and bumper overriders is permitted. Reworking or modification to exterior bodywork is prohibited but any part of the arch/wing pressing folded into the wheel arch may be deformed, but not removed, to give clearance to the tyres.

All internal panels and subassemblies must remain as originally manufactured. Strengthening is permitted. Battery trays and their supports may be removed. It is only permitted to make holes in panels for the passage of cables, fuel, water, oil, hydraulic, instrument or fire extinguisher lines.

5.6.3 Interior:

a) The dashboard must be retained in original material. The interior door trim must be retained in original or other non-flammable material. In the habitacle, floor carpets, under felt, sound deadening, headlining, front and rear parcel shelves, centre consoles, the front passenger and rear seats and trim in the boot/luggage compartment may be removed.

b) Instrumentation is free.

c) Window material for side and rear windows is free subject to prevailing MSA regulations. All original window mounting hardware (ie mounting rubbers, sliders, guides, quarter-lights and other externally visible features) must be retained. Window operating controls may be removed. If window operating controls are retained it is permissible to change electrically operated windows to manual winding operation.

d) Driver's seat is free subject to MSA requirements and the driver must be located entirely to one side of the centre line of the car. Local modifications are permitted for the purposes of secure and safe mounting. Other seats may be removed.

e) Heaters and interior ventilation systems may be removed.

5.6.4 The original boot and bonnet hinges and fasteners may be removed and are free. The original bonnet and boot shut lines must be as in production.

5.7 Engine:

5.7.1 The engine must be located in the original position.

5.7.2 The original standard production cylinder block may be used or an alternative manufactured by the same manufacturer to the original production specification including but not limited to material, bore, number of main

bearings and number of main bearing fasteners must be used and may be re-bored up to a maximum of plus 0.065".

5.7.3 The cylinder head(s) must be the standard production component or an alternative manufactured by the same manufacturer as the original production component to original production specification including but not limited to material, number of valves, ports and plugs, same plug angle, valve angle/port configuration and operating type and fixes directly onto the original standard production cylinder block without modification.

5.7.4 The crankshaft is free, but the original stroke and number of bearings must be retained.

5.7.5 Camshafts, camshaft bearings and drive systems are free, provided that they remain in their original positions and remain the sole means of operating the valves.

5.7.6 Induction.

The original production type of induction only is permitted except that vehicles fitted with injection in production may be converted to carburettors if another eligible variant of the same model sharing the same bodyshell and eligible in the same class of this championship was also available with a carburettor equipped engine. The number of chokes of the replacement carburettion must not exceed the number of chokes originally fitted to this carburettor equipped variant.

Inlet trumpets are not permitted to have automatically controlled adjustment.

Carburettors, their linkages and inlet manifolds are free, within the limitation that the total number of chokes must not exceed the maximum number of chokes homologated for Appendix 'J' Group N. Motorcycle carburettors are not permitted.

Fuel injection is only permitted if fitted in production or homologated prior to 1st January 1993 and must employ the original production method of triggering and operation. The plenum chamber is free but the number of throttles must not exceed the number fitted in production or homologated before 1st January 1993. The fuel injector nozzles must be in the original location and must not exceed the original number fitted in production or homologated before 1st January 1993.

Cars with fuel injection and four or more throttles must use the standard or homologated size throttles and these must use a butterfly type mechanism. Slide or barrel throttles are not permitted.

- BMW E30 M3 may use a maximum 48mm throttle body

Air filter and air filter box may be removed and air ducting/trunking is free provided it does not extend beyond the periphery of the bodywork. Anti surge pipes are permitted as also are return pipes from the carburettor/injection system.

5.7.7 Radiators are free but must remain in their original location.

5.7.8 Oil coolers and additional water radiators are permitted provided they are located within the periphery of the bodywork.

5.7.9 The exhaust system is free subject to MSA requirements.

5.7.10 Dry sump systems are prohibited.

5.7.11 The ignition system is free however the firing order must not be changed.

5.7.12 Forced induction is not permitted unless either fitted in production or homologated in F.I.A. Appendix 'J' Group N before 1st January 1993.

Cars using forced induction with four valves per cylinder will be subject to an equivalency factor of 1.7:1.
Cars using forced induction with two valves per cylinder will be subject to an equivalency factor of 1.4:1.

When fitting of a turbocharger is permitted by these regulations it shall be the standard production or homologated component and must not be modified save for the fitting of a 360 degree thrust bearing to improve reliability.

The boost pressure setting is free but must not be adjustable from within the habitacle.

Intercoolers may only be fitted if used in production, must be in the original location and must be the standard production unit or an alternative unit with the maximum core dimensions of 600mm x 400mm x 50mm (wxhxd) with maximum 60mm diameter pipes for both inlet and outlet. If the original intercooler is replaced by an alternative the radiator support panel maybe trimmed or deformed solely to allow fitment of the intercooler. Any other devices intended to cool the intake charge, including, but not limited to, water injection, intercooler water spray or charge coolers are not permitted.

- Ford Sierra Cosworth may only use a Garrett T3 turbocharger which must be fitted with an intake restrictor of 36mm. The restrictor must be fitted to the compressor housing and all the air feeding the engine must pass through it. The compressor housing may have material removed solely to allow fitment of the restrictor.

- Mitsubishi Starion Turbo may use a Garrett T3 turbocharger in lieu of the original component

5.7.13 Inlet and exhaust manifolds are free.

5.7.14 It is permissible to remove metal from original cylinder blocks and heads.

5.7.15 Rotary engined cars. The induction timing is free and therefore the dimension of the induction port which controls its opening and closing point may be modified by removal and addition of material. In all other respects the port must remain as homologated. The engine capacity will be determined by using an equivalency factor of 2:1. Rotary engined cars fitted with injection in production may use a carburettor with no more than two chokes

5.7.16 Fuel pumps and fuel tanks are free subject to MSA requirements.
Only pump fuel as defined by the MSA Yearbook is allowed and an MSA permitted additive is allowed.

5.7.17 All other engine components are free.

5.7.18 To allow for scrutineers wire seals, every installed engine must have 1.6mm (1/16") holes drilled in readily accessible locations as follows:-

a) Sump: Cross drilled through two adjacent retaining screws or studs.
b) Rocker/cam cover: Cross drilled through two adjacent retaining screws or studs.
c) Turbo, if fitted: Cross drilled through one retaining screw or stud fastening the compressor housing to the centre housing and the nearest retaining screw or stud to it fastening the turbine housing to the centre housing.

5.7.19 Engines may be sealed at any time by a Licensed Eligibility Scrutineer and only by written permission in advance from the CTCRC Committee or a Licensed Eligibility Scrutineer may seals be broken.

5.8 Suspension:

5.8.1 Suspension springs are free except for maintaining type (coil, leaf, torsion) and no more than the original number are employed. Spring caps are free and spring platforms may be adjustable. A telescopic damper may be converted to a coilover and redundant coil springs removed.

5.8.2 Suspension type must remain unaltered. Except springs, dampers, anti roll bars and bushes the original suspension components (or pattern parts to the manufacturer's original specification) must be employed in their original positions but may be strengthened except that Track Control Arms may be modified locally solely for the purpose of adjusting length and this may be achieved by use of a track rod end joint at one end of the TCA. Macpherson Strut top mounts are free. The original suspension mounting points are to be used without modification but may be strengthened.

5.8.3 Dampers are free providing the original operating principle (hydraulic, friction, lever or telescopic) and no more than the original number are employed. These must be mounted on the original mounting points.

5.8.4 Anti roll bars and their mountings and shape and material are free providing they fit directly on to the original body/chassis mounting points and the mobile suspension units. No other additional suspension components are permitted.

5.8.5 Suspension bushes are free providing the original production bush can be replaced in it's original position without modification to the bush housing. It is permitted to machine circlip retaining grooves to locate suspension bushes.

5.9 Transmission:

5.9.1 The gearbox must remain in the original position. Vehicles must use either the original production type of gearbox or the homologated alternative.

- Chevrolet Camaro IROC-Z may use a 4 or 5 speed manual gearbox from any other production Chevrolet Camaro, of or prior to the period.

5.9.2 Gear ratios and type are free but gearboxes and transaxles with rapidly interchangeable ratios or proprietary racing gearboxes are prohibited.

5.9.3 Only the original number of ratios and overdrives may be fitted. Gear levers and gear shift mechanisms are free but must employ the original method of operation, shift pattern and bodyshell aperture.

5.9.4 The rear axle must remain in its original position.

5.9.5 The rear axle casing must be the original standard production component but may be locally modified.

- 3rd Generation Chevrolet Camaro my use an aftermarket Torque Arm on the rear axle instead of the production item.

5.9.6 The final drive ratio is free.

5.9.7 Mechanical limited slip or torque biasing differentials are permitted.

5.9.8 Sequential gearboxes and/or traction control devices are prohibited.

5.9.9. Where a differential casing is removable from an axle casing the differential casing must be regarded as part of the original axle casing and is covered by the same technical regulations.

5.9.10 Drive shafts and propshafts are free but may only be made of metallic material.

5.10 Electrical:

5.10.1 Electrical equipment is free provided that a generator, battery and starter are fitted and in full working order at all times.

5.10.2 Headlights, tail lights, stop lights. high intensity rear light and windscreen wiper must be fitted and in full working order.

5.11 Brakes:

5.11.1 Brake systems are free save that carbon disks and ABS systems are prohibited unless fitted in production in which case they must be to production specification. Ducting for the purpose of cooling brakes or removing dust is permitted provided it is not visible outside the car and serves no other purpose and if beneath the car does not project beyond a line drawn at 45 degrees to the horizontal and tangential to the bodywork (not including overriders). Modification or removal of brake back plates is permitted.

5.11.2 Cars must be fitted with an operational hand brake. Cars fitted with dual circuit braking are not required to have a handbrake fitted.

5.11.3 Brake lights must be operational and operated only by the brake pedal without a delay. The high intensity rear light must not be operated by the brake pedal.

5.12 Wheels and Tyres:

5.12 1 **Wheels:**
Road wheels must be no greater diameter than the original diameter plus 2” to a maximum of 18”, fastened to their hubs by the original number of studs/bolts. Hubs are free except that centre locking wheels and their hubs are prohibited. Material is free.
However, an original diameter wheel +1” must be able to be fitted to the hub, as and when required. This effectively precludes the fitting of brake systems which are more than 1” larger than the original wheels will allow.

Maximum permitted rim widths are:

Class A	9.0"
Class B	9.0"

Class C 8.0"
Class D 7.0"
Class E 7.0"
Class F 7.0"

5.12.2 **Tyres**

The only permitted tyres are:-

Dunlop Formula R D01J
Dunlop Direzza 02G
Dunlop Direzza 03G
Toyo Proxes R888
Toyo Proxes R1R
Kumho ECSTA V700
Yokohama A048-R
Yokohama A032-R
Dunlop D84J, D83J, D93J (D93J in 10" diameter only).

For the purpose of clarification these tyres are MSA List 1B and therefore MSA List 1A regulations relating to wear bars and tread depth do not apply. There is no aspect ratio (profile) restriction for these tyres.

Tyres listed in the MSA List 1A are also permitted, but must have an aspect ratio (profile) of 45% or greater

No modification to tread pattern or tread depth by cutting is allowed.

Tyres must be listed by the tyre manufacturer as medium, or harder, for saloon car circuit applications. Soft compounds are not permitted.

5.15 Weights:

Minimum weights

5.15.1 Cars marketed after 1st January 1983 **-** the published Kerb weight minus 10%. Kerb weights will be determined by committee sourced reference material. The committee's decision is final.

5.15.2 Cars marketed before 1st January 1983 – as follows:-

1000cc	745kg	3600cc	1221kg
1100cc	765kg	3700cc	1237kg
1200cc	785kg	3800cc	1253kg
1300cc	805kg	3900cc	1269kg
1400cc	825kg	4000cc	1285kg
1500cc	845kg	4100cc	1299kg
1600cc	865kg	4200cc	1313kg
1700cc	885kg	4300cc	1327kg
1800cc	905kg	4400cc	1341kg
1900cc	925kg	4500cc	1355kg
2000cc	945kg	4600cc	1369kg
2100cc	964kg	4700cc	1383kg
2200cc	983kg	4800cc	1397kg
2300cc	1002kg	4900cc	1411kg
2400cc	1021kg	5000cc	1425kg
2500cc	1040kg	5100cc	1439kg
2600cc	1057kg	5200cc	1449kg
2700cc	1074kg	5300cc	1461kg
2800cc	1091kg	5400cc	1473kg
2900cc	1108kg	5500cc	1485kg
3000cc	1125kg	5600cc	1497kg
3100cc	1141kg	5700cc	1509kg
3200cc	1157kg	5800cc	1521kg
3300cc	1173kg	5900cc	1533kg
3400cc	1189kg	6000cc	1545kg
3500cc	1205kg		

5.15.3 These are true minimum weights including driver, normally seated with racing overalls and helmet with no tolerance and all cars must comply at all times. Ballast is permitted to achieve these minimum weights but weight may only be removed within the limits of the modifications detailed within these regulations.

The total weight of ballast carried must be declared, and be in position, at all times during practice and racing.

5.15.4 All cars must be suitably equipped to carry success ballast. All cars must reach minimum weights as listed in 5.15.2 excluding any success ballast. Success ballast must only be added inside the car on the front and/or rear passenger foot well. Maximum ballast of 150kg total will be allocated (75kg per footwell). It is the competitor's responsibility to provide and fit their own ballast if it is required, and to ensure that ballast is fitted in a safe manner. Success ballast weight allocation will be made on an individual basis and at the discretion of the CTCRC committee.

5.15.5 Ballast must be attached to the shell/chassis via at least 4 mounting points using bolts with a minimum diameter of 8mm each with steel counter plates of at least 400 sq mm surface area and 3mm thickness. Ballast mountings must include provision for the fitting of scrutineers wire seals.

All cars must comply with these weight limits irrespective of the year of manufacture and any other championship regulations or waivers

5.17 Numbers and Championship Decals:

5.17.1 Only competition numbers as allocated by the CTCRC Registrar shall be displayed. All numbers are to be displayed in accordance with MSA regulation J4.1 and shall remain as allocated until the end of the season in question.

5.17.2 Wherever possible, all vehicles must display the current CTCRC issued number backgrounds without modification, the BARC Shield and any other advertising material associated with a Championship sponsor as required by the CTCRC. Failure to comply may result in exclusion from practice, race and/or results

5a. SPECIFIC TECHNICAL REGULATIONS FOR CLASS F: PRODUCTION BMW

5a.1. CLASSES:

There is a single class for the BMW E30 2 door coupe, 4 door saloon, 5-door estate ('Touring') or Convertible (for the avoidance of doubt, NOT Baur Cabriolet) BMW vehicles designated 318i and 320i with either the four cylinder eight valve M40 engine or the six cylinder M20 engine.

Should one particular model prove to have unequal performance, the CTCRC Committee reserves the right to review data a maximum of three times during the championship season and to introduce performance equalising measures accordingly with a minimum of 14 days notice to the MSA and competitors concerned. These measures may involve the fitting of additional weight or performance controlling equipment to either one or all of the models.

5a.2. GENERAL DESCRIPTION:

5a.2.1 The championship is for BMW E30 series cars running either the 8 valve 1.8 litre four cylinder engine, designated M40 or the 2.0 litre six cylinder engines designated M20 as supplied fitted to the 318i and 320i models respectively. These models must have been produced in Germany for sale to the general public as shown in sales brochures and obtained through the European BMW dealer network.

The class is intended to provide close racing between drivers and not a technical challenge for preparation experts. The intention of the technical regulations is to create a car that is as safe as possible, fun to drive and yet remain as close to standard as possible**.** If you are contemplating any modifications about which you are unsure, you should call upon the CTCRC Committee for a decision. Competitors should assume that unless a modification is specifically permitted, that any modification is prohibited.

All competing vehicles shall be road legal and be capable of passing an MOT test at the beginning of each qualification or race entered. Insurance for road use, road fund licence and an MOT certificate are not required.

5a.2.2 Cars must be presented to a high standard. Excessive corrosion, poor paintwork or significant bodywork damage will incur a non compliance, which may result in exclusion from the practice / race / event entered.

5a.3. SAFETY REQUIREMENTS:

5a.3.1 All MSA Section K Safety Criteria Regulations apply as relevant and the following;

i) A suitable FIA approved competition seat with integral lateral head restraints designed for use with a six-point harness and with appropriate mountings must be fitted according to regulation K2.2 (Q19.14.2)
ii) A suitable harness of six-point design and carrying an FIA approved label must be fitted according to regulations K2.1.3
iii) The use of an approved HANS device is recommended. To ensure correct fitment, please refer to the document published by the FIA Institute for Motor Sport Safety entitled "Guide for the use of HANS in international motor sport".
iv) A plumbed-in fire extinguisher is required as detailed in regulation K3.2 (Q19.14.7) of minimum capacity 3.5 litres.
v) A suitable Rollcage must be fitted, meeting the requirements set out below.

5a.3.2 The following criteria must be met for rollcage design and installation, with the exception of 5a.3.2 v which is optional.

i) The rollcage design, construction and installation must satisfy all of K1..2.1
ii) The rollcage material must be of cold drawn seamless carbon steel only.
iii) Side intrusion Doorbars must be fitted and in accordance with K1.3.5 (b) and optionally K1.3.7.
iv) 6-point rollcages must include at least one reinforcement member as described in K1.3.5 (a)
v) Triangulation between the rollcage front legs and front strut towers is permitted.

5a.4. GENERAL TECHNICAL REQUIREMENTS & EXCEPTIONS

5a.4.1 Cars must fully comply with all relevant requirements of the 2011 MSA Year Book sections J & Q and these regulations.

5a.4.2 In respect to front towing eye, this may not protrude beyond the vertical plane of the front bumper by more than 10mm. For the avoidance of doubt this precludes the use of the standard towing eye in its standard location, competitors must find an alternative.

5a.4.3 One or more wide angle mirrors must be fitted to the standard wing mirrors or rear view mirror in order to cover the car's blind spots.

5a.4.4 To allow for scrutineers' wire seals, every installed engine must have 1.6mm holes drilled in at least two adjacent sump bolts and two adjacent rocker/cam cover bolts.

5a.4.5 All engines will be sealed at the car's first event. The seals must be in place at all times. If a seal needs to be removed for any reason, the entrant must inform the championship scrutineer who will then re-seal at the first opportunity.

5a.4.6 To facilitate technical scrutineering, engines will frequently be power tested with a handheld dynomometer, known as a Schrick meter and operated in accordance with the manufacturer instructions . In order to assist this process, all competing cars must be fitted with a standard electrical connection to operate the device.

Schrick connectors and fitting instruction are available on request from the CTCRC Committee.

5a.5. CHASSIS:

The construction type, design and material must remain as standard. Lightening or reducing the chassis strength is prohibited. Additional strengthening of the chassis is prohibited (e.g. seam welding). The chassis as produced by the manufacturer with the original material must be retained in all aspects in respect of material, thickness & contour. For the benefit of doubt, chassis is defined here to include the body shell, wings, doors, bonnet, boot-lid, roof and panels.

5a.6. BODYWORK:

As per MSA regulation J5.2.9 apply as relevant

5a.6.1 Modifications permitted but not mandated

i) All sound proofing and heat shielding material may be removed
ii) Mechanically operated items may replace electrically operated items provided that the substituted mechanical parts were available on the 318i/320i E30 models. It is not permitted to replace an electrically operated part with a non-standard alternative mechanical part or mechanism.
iii) Sunroof mechanisms can be removed entirely. If the sunroof panel is removed it must be replaced with the same material and thickness as the roof skin (Q19.14.6).
iv) A strut brace between the front strut towers may be fitted.
v) A strut brace between the rear strut towers may be fitted.
vi) Items originally fitted as optional extras to the vehicle may be removed. This includes:
- Cruise control
- Air conditioning
- Headlamp wash/wipe
- Front fog lights
- In-cabin headlamp height adjuster

vii) The original engine undertray may be removed or replaced with a metal skid plate to protect the sump provided that the plate is not be more than 100mm wider than the sump and extends no further back than the front bulkhead.
viii) A metal skid plate may be fitted to cover the fuel tank. The plate itself may not extend more than 100mm beyond the tank in any direction.
ix) Door cards may be removed. If removed, they must be replaced with an alternative panel that protects the driver from sharp edges and the intrusion of metal structures in the event of a side impact.
x) A boot spoiler may be fitted to the rearmost edge of the boot lid. This spoiler must be of the same material and dimensions as BMW part "HECKSPOILER TYP 1 916 038".
xi) Number plates may be removed.
xii) Headlamps may be covered with protective tape provided they are not coloured red.
xiii) Front and rear windows may be covered with championship or personal sponsor livery to a maximum depth of 250mm from the top of the window, measured from the centerline of the vehicle and must also comply with Q19.2.2.
xiv) The rear bulkhead may be modified to accommodate the rollcage. Where holes have been cut to fit the rollcage they shall be no more than twice the diameter of the rollcage member to be fitted. All such holes shall be sealed after fitting the rollcage.

xv) The bonnet catch mechanism may be replaced as per Q19.2.6. Redundant bonnet hinges and support struts may be removed but refer to 5a.5.
xvi) 4-door and estate models may remove the interior material and window mechanisms from the rear passenger doors.
xvii) Estate models may remove the interior material and hinge mechanisms from the tailgate but refer to Q19.2.6.
xviii) The wheel arch liners may be removed and the inner lip of the wheel arch may be "rolled" to prevent fouling the tyre but no material may be removed.
xix) All side window glass may be removed from convertible models

5a.6.2 Interior

i) All passenger seating must be removed. The driver's seat must be replaced as per 5a.3.1.i. The front passenger seat may be replaced with a competiton seat, fitted as per K2.2.
ii) Any interior trim including dashboard trim, carpeting and sound proofing may be removed.
iii) Window winding mechanisms, boot and door locks and catches must remain in place but can be disabled for safety reasons.
iv) The dashboard may be modified to allow the fitting of the rollcage and the part of it to the left of the centre console (i.e. the glove box area) may be removed provided the dash is securely fitted and has suitable alternative supports. Windscreen vents must remain to allow demisting. Driver and passenger facing vents may be removed.

5a.6.3 Modifications prohibited:

Refer to section 5a.2. The following examples are for the avoidance of doubt.

i) Silhouette must remain standard. All spoilers, dams, splitters, aerofoils and diffusers are prohibited other than that mentioned in 5a.6.1.x.
ii) All window glass must be retained as originally fitted except were allowed by 5a.6.1 xix. If nets are used to cover open side windows then the glass must still be retained.
iii) Material, thickness and profile of external body panels may not be changed.
iv) Plan must be as standard with no extensions to wheel arches permitted.
v) The use of any undertrays, diffusers or any other aerodynamic device fitted to the underside of the vehicle, other than those fitted as standard, is prohibited but refer to 5a.6.1.vii and 5a.6.1.viii.
vi) All bumpers must remain in complete condition. Bumper dampers, filling and all bumper mounting points must be retained.

Competitors are reminded that cars must be capable of passing an MOT test with the exceptions of modifications permitted by 5a.6.1 and 5a.13. "Write-off" cars are permitted so long as they are capable of passing the MOT roadworthiness test. A current MOT certificate is not required.

5a.7 ENGINE:

As per MSA regulations J5.4, J5.10, J5.12, J5.13, J5.16 and the following.

i) Only the 8-valve, four-cylinder engine (designated M40) or the six-cylinder engine (designated M20) fitted to the BMW E30 318i or 320i models are eligible. For the avoidance of doubt, the 16-valve 318iS engine (designated M42) is not eligible.
ii) No modifications to the engine or any ancillaries, including the fuel (except fuel pump [5a.15 v]), ignition systems or ECU are permitted. For the benefit of doubt, the engine must retain the standard specification block, pistons, con-rods, cylinder head, camshafts, valves, fuel pressure regulator and fuel rail.
iii) Cleaning and decoking of the cylinder head is permitted but polishing, machining or any other modifications are prohibited.
iv) The induction system must retain the standard airflow meter and throttle body, but upstream of the airflow meter is free. No mechanically forced induction is allowed.
v) The standard exhaust manifold must be retained and not modified in any way but the remainder of the system is unrestricted but refer to 5a.16.
vi) The standard cooling fan shall be retained and no additional cooling fans are permitted.
vii) The original radiator cowling may be removed but non-standard cowling is prohibited.
viii) Coolant hose material is free and hoses may be modified to accommodate an additional temperature sender.
ix) The standard sump may have baffles fitted to prevent oil starvation. No other sump modifications are permitted.
x) An oil cooling system consisting of oil radiator, oil filter head and associated pipework may be fitted solely for the purpose of reducing engine oil temperature.

xi) The maximum overbore piston diameter is 84.5mm for the 318i and 80.5mm for the 320i.
xii) The cylinder head may be skimmed to a minimum height of 140.6mm for the 318i and 124.7mm for the 320i.
xiii) For the avoidance of doubt, the 320i standard throttle body inlet aperture is 53mm diameter and airflow meter outlet aperture is 60mm diameter. The 318i standard throttle body inlet aperture is 58mm diameter and airflow meter outlet aperture is 65mm diameter.
xiv) For the avoidance of doubt, the standard Bosch ECU model numbers are listed below:

280 000 310
986 261 705
280 000 328
986 261 713
280 000 318
986 261 708
280 000 330
986 261 714
261 200 157
261 200 163
261 200 172
261 200 179
261 200 381
280 001 301
986 261 820
280 001 309
986 261 823

5a.8 SUSPENSIONS:

As per MSA regulation J5.5 and the following;

5a.8.1 Modifications permitted but not mandated

i) Camber is free. The top mounts on the front struts may be modified, or new holes may be drilled on the top of the suspension tower to achieve a greater camber than available as standard. Adjustable camber plates may be fitted to the original mounts for the same purpose." A spherical bearing may replace the original on the top of the front strut..
ii) Bush material is free provided it is not made entirely of metal (with the exception of 5a.8.1.i)
iii) All bushes must be of standard dimensions except those at the rear of the front control arms. In addition, all bushes must use only the original mountings and brackets.
iv) Anti roll bars other than the standard front fitment to the 318i/320i (18.5mm diameter) are not permitted**.**
v) Springs are free provided that they are constructed of steel but refer to 5a.8.1.ix
vi) Adjustable shock absorbers may be fitted provided that there is only one manual mechanical damping adjustment and that there are no remote reservoirs.
vii) "Coilover" spring/damper units are permitted but refer to 5a.8.1.vi. Rear coilovers must retain the original rear spring platforms but no spring may be fitted on those platforms.
viii) 51mm diameter strut cartridges as from the BMW E30 325i model may be used.
ix) Ground clearance as measured from the lowest part of the car, including the exhaust system shall be no less than 40mm, whilst meeting minimum weight requirements as per 5a.14.i. No part of the vehicle shall touch the ground if a tyre becomes deflated.
x) Shock absorber upper mounts may use spherical bearings but must retain the standard bodyshell mounting points.

5.8.1 Modifications prohibited

i) Other than 5a.8.1.i no changes to suspension pick up points are permitted.
ii) All suspension components will be of the same design and made of the same material as that on the standard vehicle save for those permitted by 5a.8.1.i)
Specifically aluminium components may not be replaced by steel components (or visa versa) and no component may be replaced by any composite material or alloys that include any element of Titanium or Magnesium.
iii) No alterations to suspension geometry are permitted, other than that available on the standard car and as per 5a.8.1.i
iv) Rod ends or other spherical bearings are not permitted save for 5a.8.1.i and 5a.8.1.x.
v) No rear anti roll bar is permitted.

5a.9 TRANSMISSIONS:

As per MSA regulation J5.11 and the following

i) Only gearboxes, clutch and differentials as supplied with approved engines in the E30 318i and 320i model ranges will be permitted, excluding the automatic transmission option.
ii) Gear ratios must be as supplied with the gearbox in production form. For reference, the standard forward ratios are 3.72, 2.02, 1.32, 1.00, and 0.80.
iii) Gearbox and differential mounting and location points must be retained and used as intended by the manufacturer.

iv) The standard 318i/320i differential must be used, with a final drive ratio of 4.10:1. Limited slip differentials are prohibited.
v) A "short shift" gear lever (BMW part number 25.11.7.527.252) may replace the standard item.

5a.10. ELECTRICS:

5a.10.1 As per MSA regulation J5.14.3 & 4 and the following;

i) The standard heater/demisting mechanism (including rear window demisting) shall be retained, not modified in any way and shall be in full working condition.
ii) The battery size and type is free but must be capable of starting the car unassisted. The battery must remain in its original location unless prevented by 5a.3.2.v, in which case it may be relocated elsewhere within the engine compartment.
iii) The standard battery clamp is inadequate and an alternative or additional battery clamp should be used.
iv) The alternator must remain in its standard configuration and be operational at all times while the engine is running.
v) No devices may be added or modified to provide any form of traction control, launch control or full-throttle gearshifts.
vi) Electrical switches can only operate the function for which they were originally fitted into the car for and for no other purpose, with the exception of the key-operated ignition and starter switches which may be replaced by separate switches.

5a.10.2 Modification to any electrical system, other than re-routing wiring, is not permitted with the exception of electrical supply to fuel pumps. As per Bodywork above, electric mechanisms may be substituted by mechanical. Sunroof mechanisms can be removed. Controls may be repositioned where allowable trim modifications require it (e.g. electric window switches, light switches).

The following redundant electrical items and associated wiring may be removed:
i) On-board computers
ii) Interior courtesy lamps
iii) Boot illumination
iv) Glovebox illumination
v) Electric window override (safety) switch
vi) Electric mirror control switch, providing mirror adjustment is still available. If electric mirrors are retained, the control switch need not be permanently installed.
vii) Front fog lamps and switchgear.
viii) Speakers, radio, tape player, 'head unit' or other In Car Entertainment systems.

5a.10.3 Engine electronic control units (ECU's) will periodically be exchanged between competing cars with the same engine type or for a standard reference ECU held by the organisers. ECU's must therefore have good access and be quickly removable.

5a.11 BRAKES:

The braking system shall be as standard as fitted to either 318i or 320i, as per MSA regulation J5.6 and the following;

i) Anti-lock braking systems (ABS) must be removed or disabled.
ii) Brake pad and shoe material is free but dimensions to remain as original equipment.
iii) Discs are free but must be one-piece construction, steel, of original diameter and use standard callipers.
iv) Adding of ducting and removal of splash guards only are allowed to improve brake cooling but refer to 5a.6.1.
v) Rear discs as per standard fitment to the BMW E30 325i or 318i/320i with optional ABS system are permitted but refer to 5a.11.1.ii and 5a.11.1.iii above.
vi) No adjustment to the brake bias is permitted.
vii) The standard flexible brake lines may be replaced with braided items.

5a.12 WHEELS / STEERING:

As per MSA regulations J5.7 & J5.8.2 and the following;

i) The steering system including rack, tie rods, steering arms, and column shall remain as standard
ii) The steering wheel is free within MSA regulations.

iii) Only steel or single piece aluminium alloy road wheels are permitted of 15" diameter, maximum width 7J, offset between ET 15 and ET 25. Tyres should not foul the body or chassis when the steering is turned under both static and dynamic suspension load.
iv) No wheel spacers that affect maximum vehicle track are allowed.
v) Wheel hubs may be fitted with studs to accept wheel nuts.
vi) Power assisted steering may be disabled but refer to 5.12.i.
vii) A spare wheel may be fitted in the original location and must be securely mounted.

5a.13. TYRES:

The control tyres for the championship are "Toyo Proxes R888" in 195/50R15 size (2G compound only). It is prohibited to alter the tread pattern of the tyres by cutting and the original tread pattern must remain visible at all times.

5a.14. WEIGHTS:

Weight are defined in one way:

As the whole vehicle, including all consumables and fluids, at the end of each qualification or race entered including the driver in full racing kit.

Different minimum weights apply for 318i and 320i models, regardless of body style. All cars must achieve minimum weight as defined below:

318i 1065kg **320i** 1125kg

Cars may carry ballast, as per J5.5, in order to achieve the minimum weights.

5a.15. FUEL TANK/FUEL:

As per MSA regulation J5.13 where appropriate. The design and location of the fuel tank shall be as manufacturer's specification. Only pump fuel as defined by the Terminology Section of the 2011 MSA Year Book is permitted.

i) Fuel Tank type - standard
ii) Location - standard
iii) Fuel - Pump fuel only is allowed. An MSA permitted additive is allowed,
iv) A fuel tank guard may be fitted to the underside of the car as per 5a.6.1.viii
v) Fuel pumps are free, subject to MSA requirements.

5a.16. SILENCING:

All vehicles shall conform to MSA regulation J5.17 'section A' and with the restrictions enforced by the Road Traffic Act.

6. APPENDICES:

The following Commercial Regulations are “contractual” between the Entrant and / or Driver and the Organisers and / or Promoters and are not considered by MSA. Accordingly, the application of these Commercial Regulations by the Organisers and / or Promoters will not be subject to the Judicial processes of either the Championship Stewards and / or the MSA / MSC.

6.1 Race Organising Clubs and Contacts:

BARC, Thruxton Circuit, Andover, Hampshire SP11 8PN
Tel: 01264 772696 Fax: 01264 773794

Eligibility Scrutineer:
TBC (BARC)

6.2 Commercial Undertakings:

None

6.3 Agreed Waivers:

Refer to the relevant part of Section 5 for details of specific agreed waivers

6.4 Log Books:

A central logbook will be held by the eligibility scrutineers where specific eligibility infringements will be recorded and a copy issued to the entrant at scrutineering.