

2012 HAMMERITE RACING CLASSIC GROUP ONE 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 principle that you cannot.

5.2 Description:

Group One Touring Cars are saloon cars marketed before 1st January 1983 of which more than 5000 examples were manufactured in any 12 month period during the overall production run and/or were homologated by the FIA for competition in Group One 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.

- Jaguar XJ12 four door is eligible.

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.

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

5.2.3 Cars will run in seven classes based on production capacity excluding permitted overbore:

Class A	Over 4000cc
Class B	2,501 – 4,000cc
Class C	1,601 – 2,500cc
Class D	1,301 – 1,600cc
Class E	0 to 1,300cc
Class F	Production BMW
Class G	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 F Production BMW are awarded points and trophies in class but are not eligible to win the overall championship. Class F technical eligibility is subject entirely to regulations of section 5a and not otherwise.

5.2.4 Cars must be presented to a high standard.

5.2.5 Presentation of 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 safety roll-over structure and any doorbars.

5.4 Miscellaneous:

- 5.4.1 Vehicles may be brought up to any series production specifications for that model prior to 1st January 1983. 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 manufacturer's original specifications for that model as catalogued by the manufacturer or importer prior to 1st January 1983.
- 5.4.4 Advertising on vehicles is subject to requirements set out in MSA Yearbook Regulation 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, FIA/FISA (or national equivalent for foreign cars) homologation papers for use in Group One 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 1983. 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 1983. Optional equipment is to be submitted to the CTCRC committee for possible inclusion on a vehicle by vehicle basis.
- 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 4" (100mm) excluding exhausts and silencers.
- Jaguar XJ series does not have to achieve the required ground clearance at outer ends of the lower front suspension arms.
- 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. Where original materials are unobtainable, local repairs of adequate strength may be made using modern equivalents. Replacement of complete panels with non-original material is prohibited. The removal of exterior decorative strips and bumper overrides 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. Any item below the centreline of the wheel must not project beyond a line drawn at 45 degrees to the horizontal and tangential to the bodywork (not including overrides).

- Colt / Mitsubishi Starion may use fibreglass bumper covers in place of the original ABS plastic mouldings but any metal reinforcement must remain as original.

5.6.2 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.

Hatchback cars with under-floor spare wheel well may remove the spare wheel well for the sole purpose of the fitting of a fuel tank under the boot floor. A steel plate of at least the thickness of the metal removed must cover the aperture remaining.

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.
- e) Heaters and interior ventilation systems may be removed.

5.6.4 The original boot and bonnet fasteners may be removed. All boot and bonnet hinges must remain in position and operate as in original production. The 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".

- Rover SD1 may use cross-bolted block.

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: Only the original production type of induction must be used.

Inlet trumpets are not permitted to have automatically controlled adjustment.

Carburettors are free within the limitation that the total number of chokes must not exceed the maximum number of chokes fitted in production or homologated for Appendix 'J' Group One. Motorcycle carburettors are not permitted.

Fuel injection is only permitted if fitted in production or homologated in Appendix 'J' Group 1 prior to 1st January 1983 and must employ the original production method of triggering and operation. The original plenum chamber must be retained intact but the entry duct and/or flange may be variously;

- a) enlarged in cross section area, associated throttle valve(s) being free except for the original number being maintained,
- b) extended upstream by the addition of metal and/or separate trunking not extending beyond the periphery of the bodywork,
- c) reduced in length by removal metal upstream (not downstream) of the original entry to the Main plenum chamber or entry to the first branch pipe, whichever is the further upstream.

Air filter and airbox may be removed, modified or replaced and air ducting/trunking is free providing it does not extend beyond the periphery of the bodywork. A single round hole with the diameter no greater than 102mm or two round holes with diameters no greater than 77mm may be made in the radiator support panel for induction air ducting/trunking to pass through. 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 distributor may be fitted with an after-market spark triggering device but the distributor must remain in its original position and must maintain its original function. Any additional system which processes information acquired from the ambient conditions and/or the engine is not permitted. The distributor must be the only means of determining ignition advance and retard and must continue to distribute the high tension spark. The firing order must not be changed. The remainder of the ignition system is free.
- Rover SD1 may use a DTA spark control device triggered using a hall effect trigger in the distributor but over 3,000 rpm there must be no advance curve i.e. the amount of advance must be constant at all times over 3,000rpm. For scrutineering purposes a connection lead suitable for connection to a laptop computer must be fitted at all times.
- 5.7.12 Forced induction is not permitted unless either fitted in production or homologated in F.I.A. Appendix 'J' Group One before 1st January 1983. Cars using forced induction will be subject to an equivalency factor of 1.4:1. Boost pressure must not be adjustable from within the habitacle. When fitting of a turbocharger is permitted by these Regulations it shall be the standard production or homologated component and must not be modified. The boost pressure setting is free.
- 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
- 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 scrutineer's wire seals, every installed engine must have 1.6mm (1/16in) holes drilled in at least two adjacent sump bolts and two adjacent rocker/cam cover bolts.

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 a homologated alternative. Cars originally produced with no manual gearbox option may use any 4-speed manual gearbox from the period.

- Mazda RX7 may use Ford type 9 Gearbox with iron case.

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.

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

- 3rd Generation Chevrolet Camaro may 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 discs and ABS systems are prohibited. 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 Road wheels must be of original diameter, fastened by the original number of studs/bolts, split rims are prohibited and material is free. Hubs are free.

Maximum permitted rim widths are:

Class A	8.0"
Class B	7.0"
Class C	6.5"
Class D	6.0"
Class E	5.5"

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

Tyres listed in the MSA List 1A are also permitted

Tyres must have an aspect ratio (profile) of 50% 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.

5.13 Weights:

These are true minimum weights with no tolerance and all cars must comply at all times including the driver, normally seated with racing overalls and helmet. Ballast is permitted to achieve these minimum weights but weight may only be removed within the limits of the modifications detailed within these regulations. Ballast must be securely attached within the habitacle and attachment bolts predrilled for the purpose of attaching scrutineers

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

Minimum weights by production capacity (not homologated capacity) after applying equivalency factor not exceeding:

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		

Engine capacities exceeding 6000cc:- add 10kg per 100cc. Therefore 7000cc minimum weight = 1645kg

All cars must comply with these championship 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 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 do so may result in exclusion from qualifying, 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 Production BMW Championship 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 regulation K2.1.2 & 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, K and 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 dynamometer, 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 PBMW Championship 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 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 Q19.2.2. 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 Q19.2.2.
- 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 competition 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 where 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. The oil radiator may only be fitted in front of the water radiator or beneath it. All pipework and fittings must be within the periphery of the bodywork.
- 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	261 200 163
986 261 705	261 200 172
280 000 328	261 200 179
986 261 713	261 200 381
280 000 318	280 001 301
986 261 708	986 261 820
280 000 330	280 001 309
986 261 714	986 261 823
261 200 157	

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. ELECTRICALS:

5a.10.1 As per MSA regulation J5.14. 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 and Dunlop D84J. 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:

Weights 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
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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 Section B of the MSA Year Book is permitted.

- i) Fuel Tank type - standard
- ii) Location - standard
- iii) Fuel - only pump fuel as defined by Section B of the MSA Year Book.
- 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 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 882200 Fax: 01264 882233

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.