

2011 MDA R50 BMW MINI

Rallycross Championship

Published Copy

PUBLISHED 2011 MDA R50 BMW MINI Technical Regulations

The Following M.S.A. Vehicle & Technical Regulations apply:-

All the following references, relate to the MSA 2011, Competitors and Officials Yearbook (MSA Bluebook)

Section: J 1.1 and J 5.20.13

Section: K 1 → K 1.8 (excluding K 1.6.2, K 1.6.3, K 1.6.4, 1.6.6, and 1.7) K 2.2 complete. K 3.1.1. (Table 3, Page 171), plus K 3.4. complete. K 5. complete. K 8.1, K 8.2, K 8.5. K9. complete, except K 9.1.1 and K 9.1.2. K 10 complete. K 14.3.

Section: J 5.13.4. (Table on page 64). N 6.1 → N 6.14.3. Q 19.1.3

PLEASE READ THESE REGULATIONS THOROUGHLY. IF IN DOUBT ASK.

1. SAFETY

1.1 A full roll cage with one or two diagonal braces and door protection bars complying with Drawings 5 or 6, on page 173, and sections K 1, to K 1.8 (excluding K 1.6.2, K 1.6.3, K 1.6.4, 1.6.6 and 1.7), is the mandatory minimum; an additional bar must be fitted to the rear diagonals for the fitting of seat belts, this bar will be a minimum of 40 x 2 mm or 38 x 2.5 mm.

The roll cage may be purchased from the MDA at a cost of £720-00 + VAT.

1.2 A fire extinguisher with a minimum capacity of 1.75 litres AFFF is the mandatory minimum. Refer to K 3.1.1 (Table 3, page 171), plus K 3.4. complete.

1.3 Front windscreen to be laminated glass or a minimum of 4 mm polycarbonate. An operative windscreen wiper/washer system is required. A rear screen and side windows are mandatory. Consideration **MUST** be given to driver's compartment ventilation for this purpose only, it is permitted to cut a maximum of 4 x 50 mm diameter holes in each rear side and or tailgate windows. A vented hole may also be added to the driver's window large enough to accept the driver's arm. A complete set of side and rear polycarbonate windows will be supplied by the MDA at a cost of £200-00 + VAT.

1.4 Seat Belts. Refer to K 2.1.complete (except K 2.1.1, 3 point not allowed) 4 point is mandatory minimum. Anchor points must not rely solely on the large washers supplied with many seat belts but **MUST** be reinforced over a suitable area to give the sufficient strength. The rear fixing of the seat belts must be fixed to additional bar fitted to the roll cage.

1.5 A competition seat with a built-in headrest is mandatory. Refer K 2.2 complete.

1.6 An ignition cut-off switch having positive on/off positions clearly marked, must be fitted in a position to be operable by the driver when normally seated. It must also isolate the fuel pump(s). A spark proof master cut-off switch must be fitted externally below the windscreen and be readily accessible whatever the attitude of the vehicle following an accident. The switch must be clearly marked with a red spark on a white edged blue triangle and On/Off positions clearly marked. Refer: - K 8.1, K 8.2, K 8.5.

- 1.7 The front bulkhead **MUST** be effectively fire proofed, so as to seal off the drivers compartment from fire within the engine compartment. Tape is not considered acceptable. Refer J 5.2.2 .
- 1.8 Crash Helmet. Refer K 10 complete.
- 1.9 Overalls. Refer K 9. complete, except K 9.1.1 and K 9.1.2.

2. Body Work and General

- 2.1 The outward appearance of the car must remain unaltered. Body shell / chassis to be standard NEW Mini R50 Mini One or Mini Cooper Saloon 2000-2006 model only. Removal of internal brackets and fixings for rear seat may be removed. The internal door steel may be removed.
 - 2.1.1 Weight limits. The minimum weight for car and driver is 1100 kg. If the car is fitted with the six speed gearbox, the minimum weight is 1150 kg.
- 2.2 Fibreglass bonnet, front and rear bumpers may be used provided they are securely fixed. A one piece front is available from the MDA at a cost of £200-00
- 2.3 Plastic inner wings may be removed.
- 2.4 The exterior of the car **MUST** remain as standard, although it is permitted to remove badges and the radio aerial.
- 2.5 The reinforcing of the standard suspension mounting points may **NOT** extend to more than a radius of 100mm from the centre of the suspension point. The crumple area of the left and right front chassis legs may be reinforced.
- 2.6 Glass sunroofs are not permitted. The sunroof aperture must be closed by a metal panel permanently fitted in place.
- 2.7 All lights may be removed and the apertures blanked off.
- 2.8 All interior trim may be removed, including floor covering, head linings, front & rear passenger seats, audio equipment, spare wheel, standard seat belts. Door / trim panels must also be removed and replaced with aluminium or fibreglass panels. Driver and passenger air bags maybe removed, however it is mandatory that the system be made inoperable. Heater system is optional.
- 2.9 All cars must be fitted with one internal rear view mirror of at least 50sq. cm securely mounted and positioned to give a clear view to the rear. The edges of the mirror must be protected by a suitable cover to reduce the possibility of injury in the event of an accident. External mirrors must be kept as standard.
- 2.10 All cars must be fitted with towing eyes front and rear which must not protrude beyond the limits of the body. Their position should be marked clearly in a contrasting colour other than black or white. (refer:- Q19.1.3)
- 2.11 The standard petrol tank must be retained and in its original position. It is mandatory for the fuel tank to have a protective guard.
- 2.12 Door handles must be retained. Bonnet and rear tail gate must be fitted with additional catches/straps. The tail gate electric catch must be removed.
- 2.13 The exhaust outlet must exit in the original position. Catalytic converter to be retained. The exhaust is free. See next Paragraph 2.14.
- 2.14 An effective silencer must be fitted to the vehicle at all times in accordance with Section J appendix 1, chart 5.18, section F.
- 2.15 Choice of steering wheel is free.

- 2.16 The standard steering column must be retained and the steering locks must be rendered inoperative. It is permissible to remove the PAS unit.
- 2.17 The instruments are open to free choice. Dashboard may be removed to allow the fitment of the roll cage.
- 2.18 It is permitted to fit protective guards to the sump. Any guards may protect but NOT strengthen. It is NOT permitted to reinforce the bumpers or their mountings.
- 2.19 Radiators must remain within the engine compartment. Electric fans and water pumps are permissible. It is permitted to modify or remove the radiator shield / cowl. If removed, the radiator must be retained by metal brackets.
- 2.20 Mud flaps are to be fitted behind all four wheels, extending to a minimum of 38mm either side of the tyre tread and to a maximum of 76mm above the ground.
- 2.21 Side skirts. Any standard, or the modified component from the MDA is permitted.
- 2.22 The rear wing assembly is optional but if fitted must be identical to the original BMW / JCW part.
- 2.23 The ABS system must be made inoperative, or may be removed.

3. ENGINE AND GEARBOX

NOTE: Throughout this section, the words 'standard' and 'production' refer specifically to items manufactured by the BMW Group and OEM suppliers and no other manufacturer.

- 3.1 The engine and gearbox must be of the type originally fitted and be in the original position.
- 3.2 Head gasket is free. The original terrain must be visible in the inlet and exhaust ports and in combustion chambers. Heads may be skimmed for maintenance purposes only and may not be less than 96.8 mm. The minimum combustion chamber volume is 32.0 cc. The minimum combustion chamber volume is 32.0 cc. The minimum block height is 204.65 mm, measured from head face to bed plate face.
- 3.3 A production crankshaft and standard con rods are mandatory, although balancing is permitted. Machining the crankshaft in any other way to reduce weight or any other benefit is not permitted. Polishing is not permitted. In all cases one con rod must be completely standard.
- 3.4 Pistons must be unmodified standard production or approved replacement pistons.
- 3.5 NOT USED.
- 3.6 Steel or Alloy competition flywheels are not permitted. The standard unit may not be lightened by machining and or drilling.
- 3.7 It is permitted to baffle the standard sump and modify the oil pick up pipe. Dry sumping is NOT allowed.
- 3.8 It is permitted to fit an oil cooler within the engine compartment.
- 3.10 Exhaust and inlet manifolds are to be STANDARD.
- 3.11 It is permitted to remove/replace the original air filter with a performance filter or induction kit. All engine breather pipes that do not re-circulate must go to a breather catch tank. It is NOT permitted to modify the throttle mechanism, throttle body or throttle plate. For information the throttle body diameter at the manifold face is 53.6mm, and the butterfly plate is 52mm.
- 3.12 Spark plugs are open to free choice.

- 3.14 Fuel system is standard.
- 3.15 Superchargers, turbo-chargers, injection of nitrous oxide or water are NOT permitted.
- 3.16 Fuel: Petrol as defined as 'Pump fuel' J 5.13.4. (Table on page 64).
- 3.17 Standard gearbox casing and all internals MUST be retained. Gearbox ratios and final drive must be the same as originally supplied for that gearbox. Gearboxes may be rebuilt with stronger bearings.
- 3.18 Where the six speed gearbox is used, the car will run 50 kg over the minimum weight.
- 3.19 Locked or limited slip differentials or any other device intended to give a similar effect is not permitted.
- 3.20 The clutch is free as long as the same number of driven plates as used in the production item are retained. Friction material is free providing it is to the original configuration.
- 3.21 Water pumps are free but must remain within the engine compartment.
- 3.22 Standard drive shafts must be retained.
- 3.23 Short shift gear linkage is permitted.

4. SUSPENSION AND BRAKES

- 4.1 Standard brake system must be retained apart from modifications outlined in section 4.2 & 4.3. Brakes must be operative on all four wheels. Hand brakes must be operable and be of sufficient efficiency to hold the car on a slight gradient.
- 4.2 Standard BMW Mini pattern aftermarket ferrous discs may be used. Friction material is free. Brake hoses are free.
- 4.3 ABS braking is not permitted; therefore ABS braking is to be disabled or removed. It is permitted to fit pressure limiting/apportioning valves to the rear brakes.
- 4.4 The ride height may be altered.
- 4.5 Any dampers and springs are free. Remote canister dampers are not permitted. Front, top mounting point may be modified, providing 4.5.1. is not exceeded.
- 4.6 Camber angle on front and rear wheels must not exceed 3 degrees negative.
- 4.7 Competition bushes are permitted. Spherical joints are not permitted.
- 4.8 Pressed steel suspension arms may be strengthened.
- 4.9 Anti roll bars may be fitted, providing they are standard BMW parts.
- 4.10 The wheels are the 15 inch diameter Mini Cooper alloy wheels with a 5.5 inch maximum width. Wheel nuts must match the wheel used.
- 4.11 Yokohama 195/55/15 AO48R (compound S only) tyres are mandatory.
- 4.12 Front upper and lower strut braces are permitted and their design and material is free. Front control arm, rear carrier mounting bolts and the front sub frame bolts, may be replaced with nuts and bolts.

5. ELECTRICAL EQUIPMENT.

- 5.1 Car ECU. It is the competitors responsibility to forward the ECU to Championship MSA Eligibility Scrutineer. The ECU will be forwarded to Superchips for upgrade

modification. The unit will be returned as a sealed unit. Sealed units are mandatory. The eligibility scrutineer will have bespoke soft wear, able to test these units. Where there is doubt the unit will be returned to Superchips. The MDA will have a control ECU and will retain the right to instruct a competitor to run this unit at an event.

- 5.2 All sensors, actuators and wiring originally fitted to the engine ECU must be operational and standard in all respects. The only exceptions to this are fitting: - battery masters switch: rev counter: cooling fan switch: electric water pump switch: shift light.
- 5.3 Body control unit may be bypassed or removed along with all related wiring.
- 5.4 Each car must be fitted with two RED brake lights, of the anti-crash type as used in fog, with a minimum of 21 Watt bulbs fitted. The lights should be clearly visible from behind when the foot brake is applied.
- 5.5 A 'poor visibility' light should be fitted. Refer K5 complete.
- 5.6 Both charging and starting circuits must be as standard and function efficiently.
- 5.7 A battery and self-starter must be fitted and in working order and not of a temporary nature. The battery may be located either next to the engine or in passenger compartment. The battery earth lead must be coloured yellow. Battery terminals MUST be covered with insulating material. Insulating tape will not be permitted. Battery must be securely mounted to the vehicle. If mounted within the passenger compartment, battery must be fitted in a sealed nonconductive battery box
- 5.8 External circuit breaker must be fitted. Refer: - K 8.1, K 8.2, K 8.5.

6. ELIGIBILITY CHECKS.

- 6.1 Random eligibility checks may be made at any meeting and engine / gearbox assemblies checked or sealed for subsequent checking. The Championship Organisers will reimburse Scrutineers travelling expenses when a sealed engine / gearbox assembly is subsequently checked and found legal. All other expenses to be borne by the Entrant / Competitor. If the engine / gearbox assembly is found to be illegal all expenses must be covered by the Entrant/Competitor. Random fuel checks will be made.
- 6.2 Sealing of engine/gearbox assemblies shall only be by means of wire and official M.S.A. numbered seals and/or paint. All cars MUST have studs, nuts and bolts drilled to enable seals to be affixed. Drillings must be of at least 3mm diameter. Failure to have the following drilled is deemed to be a breach of vehicle eligibility. See appendix 1 for photographs indicating the bolts to be drilled.

Drivers may, if they wish, elect at their own expense to have the above items sealed by and Eligibility Scrutineer during assembly. A sealing certificate would then be issued for the vehicle. Providing the original seals are in place, and the original certificate is produced at any subsequent eligibility inspection, the need for further stripping will be removed.
- 6.3 MSA vehicle log books are required in accordance with Section J 2.1 – J 2.1.5.
- 6.4 Non production of the Vehicle Log Book will be deemed a breach of vehicle eligibility.

IMPORTANT SAFETY CHANGES

Please pay particular attention to the sections on Fire Extinguishers, Seats and their Fixings, Harnesses and Helmets. The regulations covering these may have changed from last year in the MSA Competitors Yearbook.

Appendix 1

The arrows indicate the bolts that must be drilled to facilitate scrutineers seals. See 6.2.



Draft Only