



2024 BTRDA CLUBMAN'S RALLYCROSS CHAMPIONSHIP

Appendix 2b

All 4 Mini (Modified 4x4) Technical Regulations

INTRODUCTION.

The following Technical Regulations are set out in accordance with the Motorsport UK specified format and it should be clearly understood that if the following texts do not clearly specify that you can make a modification you should work on the principle that you cannot.

It should be clearly understood that unless a modification or removal/change of an item is specifically permitted by these regulations, that any modification or removal/change or repositioning of an item is prohibited. The provision of evidence to determine eligibility is the responsibility of the entrant/driver.

BMW Mini All 4 will form part of the Modified 4x4 Category – see Modified 4x4 regulations as published by the BTRDA in 2024.

The Class is only open to the Mini Cooper S All4 2010-2016 models. All parts from the models may be interchanged, although the engine and running gear are mandatory to be from the Cooper S All4 models. All cars must comply fully with the current Motorsport UK Yearbook Regulations J and Technical regulations N6.1. to 6.14.3. and these supplementary regulations.

The term 'make' refers to the manufacturer of the vehicle. The term 'model' refers to the product ONLY. It does not refer to the model variants, trim level or specification. As per the Motorsport UK yearbook, the term **standard** implies that the specification, features, location and method of operation of a part are as supplied when new by the motor manufacturer for the model and date of car as shown on the entry form.

Eligibility reference for any parts or assemblies is by reference to manufacturer's official publications, the relevant Haynes manuals, and Autodata Workshop Application ONLY.

5.2 FUEL TANK and FUEL.

5.2.1 Be equipped with an effective method of stopping the fuel supply that can be operated by the driver when normally seated with seat belts secured

5.2.2 The fuel pump, filter and fuel lines are free.

5.2.3 Cold start systems may be disconnected or removed.

5.2.4 Only Pump Fuel as defined in section B of the Motorsport UK yearbook is permitted

5.2.5 The original fuel tank may be replaced by another provided it is located in the original location

5.2.6 If the fuel tank is located inside the car, a safety, currently FIA homologated, FT3 type must be fitted if the standard tank is not used.

5.2.7 An alloy fuel tank, maximum capacity 5 litres, fitted with fuel tank foam may be fitted inside the engine compartment.

5.3 Telemetry / Voice Communications

5.3.1 Any form of wireless data transmission between the vehicle and any person and/or equipment is prohibited while the car is on track. This definition does not include:

5.4 Safety Requirements

5.4.1 Each team shall provide a ground sheet on which the competition vehicle must be parked on throughout servicing.

Any competitor who does not comply with 5.6.1 or 5.6.2 will be refused permission to start until they comply.

5.4.2 Waste oil, tyres and other consumables must only be disposed of in the specifically provided waste receptacles at the venues (NOT general waste bins), or if not provided, be taken home.

5.4.3 If the engine/motor(s) is run with the drive engaged whilst the vehicle does not have any of the driven wheels in direct contact with the ground the vehicle must be securely supported on stands (not jacks) and:

a) a competent person must be in the driver's seat while the engine/motor(s) is running and

b) there must be a safe zone around the car with only essential personnel admitted while the engine/motor(s) is running and

c) each driver/entrant is responsible for controlling and managing the above obligations within their own paddock space and for briefing their own personnel on all matters of safe work practices.



5.4.4 The use of tyre heating/heat retention devices in the paddock, on the pre-grid or start line is prohibited.

6 SPECIFIC ALL4 SUPER MINI TECHNICAL REGULATIONS

6.1 General Technical Regulations and Requirements

6.1.1 Cars must comply with the Technical Regulations published by the BTRDA.

6.1.2 All cars must comply fully with the current Motorsport UK Yearbook J Common Regulations for Competitors: Vehicles and Rallycross Technical Regulations N6 and these regulations.

6.1.3 The use of magnesium alloy sheet is not permitted. Titanium sheet may only be used for heat shields

6.3 Safety Requirements

6.3.1 Rollover structure to N6.12.1 as a minimum is mandatory. K1.6.1 Appendix 2, drawing 12 (g) or (h).

6.3.2 All cars must be fitted with an FIA fixed extinguisher system plumbed to the engine bay and the cockpit.

6.3.3 Seats. Be fitted with a driver's seat FIA Homologated and mounted in accordance with K.2.2. For national events, FIA homologated seats manufactured to FIA Standard 8855-1999 may be used for up to two years beyond the expiration of the original homologation label validity. FIA homologated seats manufactured to FIA Standard 8862-2009 may be used until 31st December of the year stated on the label.

6.3.4 Currently, FIA homologated Seat Belts are mandatory. With two separate fixing points for the shoulder straps.

6.3.5 In addition to the minimum apparel standards set out in Motorsport UK General Regulations K9 following are recommended:

- flame-resistant race suit homologated to FIA 8856-2000 standard or FIA 8856-2018
- flame-resistant gloves and shoes
- flame-resistant underwear
- flame resistant balaclava
- Frontal Head Restraint (FHR)

6.3.6 The side windows on the driver's side of the car must remain closed A sliding window in the side windows of the driver's and passenger's doors may be fitted. The opening must be a minimum of 130mm x 130mm and a maximum

of 150mm x 150mm. The sliding windows must be closed at the start of the race.

6.3.7 The use of FIA-approved 8863-2013 safety racing nets (see FIA Technical List No. 48) on both sides of the driver is recommended. Where used, racing nets must be fitted in accordance with "FIA Racing Nets Installation Specification for Touring and Grand Touring Cars". Window nets must not be used where racing nets are used.

6.4 Chassis & Bodywork

6.4.1 The outward appearance of the car must remain unaltered. Bodyshell/chassis to be standard R60 Mini range (2010-2016 models only). All brackets and fixings may be removed. The internal door steel may be removed, with the exception of the driver's door. The steel driver's door must be retained, although the outer skin may be covered by a composite panel moulded from the standard part.

6.4.2 Fibreglass bonnet, front and rear bumpers may be used provided they are securely fixed and must be the same shape and size as standard fitments (with the exception of wheel arches).

6.4.3 The car's exterior body panels may be substituted for composite ones (fibreglass). The visual appearance of these parts must be identical to the standard panels, except the wheel arches and side sills.

6.4.4 Side skirts may be replaced or modified, but the width must not exceed beyond the front and rear wing extensions when viewed from above and must not contain metal.

6.4.5 The rear wing assembly is optional, but if fitted must be identical to the original Mini.

6.4.6 Glass sunroofs are not permitted. The sunroof aperture must be closed by a panel permanently fixed in place of steel or composite material.

6.4.7 All lights must be removed, and the apertures blanked off.

6.4.8 It is not permitted to reinforce the bumpers or their mountings.

6.4.9 Front door handles must be retained. Bonnet and the rear tailgate must be fitted with additional catches /straps. The tailgate electric catch must be removed. Rear door handles may be removed, and the rear door panel may be incorporated into the rear quarter panels but must retain the standard appearance.

6.4.10 Plastic/fibre inner wings may be removed or replaced with other materials except for steel.



6.4.11 The front bulkhead must be effectively fireproofed to seal off the driver's compartment from a fire within the engine compartment. Tape is not considered acceptable. Refer J 5.2.2.

6.4.12 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, and 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.

6.4.13 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, **rear suspension points may be removed, and new rear towers can be installed to accommodate the suspension**, the roll cage may be extended onto front suspension tower side, except for front strut braces. The crumple area of the left and right front chassis legs may be reinforced.

6.4.13.a The ride height may be altered.

6.4.13.b Shock absorbers and springs are free. Remote canister dampers are permitted. Rose type joints may be used in the shock absorbers top and bottom mounts. Front, top mounting point may be modified/re-drilled.

6.4.14 All interior trim must be removed, including floor covering, head linings, front & rear passenger seats, audio equipment, spare wheel, and standard seat belts. Door trim panels must be removed and may be replaced with aluminium or fibreglass panels. Driver and passenger airbags must be removed. A heater system is optional.

6.4.15 The instruments are open to free choice. The original dashboard may be removed but must be replaced with a fibreglass dashboard which replicates the original.

6.4.16 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 of 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 door mirrors must be fitted and can be aftermarket units.

6.4.17 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: - N.6.14.3)

6.4.18 It is permitted to fit protective guards to the sump. Any guards may protect but not strengthen. These

protections must be made from either aluminium alloy, steel or composite material and have a minimum thickness of 3mm for alloy and composite materials and 2mm for steel. Individual protections' total weight must not exceed 20kg maximum each (FIA279 appendix J page 7, 3.2.5).

6.4.19 Radiators must remain within the engine compartment, Electric fans and water pumps are permissible. All pipework is free. It is permitted to modify or remove the radiator shield/cowl Radiators must be retained by metal brackets.

6.4.20 Intercooler radiators are free but must be fitted in the engine bay.

6.4.21 Spraying of water onto the intercooler system/radiator is not allowed.

6.4.22 Mudflaps are to be fitted behind all four wheels, extending to a minimum of 38mm either side of the tyre tread and a maximum of 76mm above the ground.

6.5 ENGINE

The cylinder head, engine block and sump must remain standard as supplied by Mini unless specifically permitted by these regulations Note: **Throughout this section, the words' standard' and 'production' refer specifically to items manufactured by the Mini Group and OEM suppliers and no other manufacturer.**

6.5.1 The engine must be of the type originally fitted to the Cooper S models 2010-2016.

6.5.2 Head gasket is free. The original terrain must be visible in the inlet and exhaust ports, and combustion chambers.

6.5.3 A production crankshaft and standard con rods or uprated Wossner steel rods are permitted. Balancing is permitted. Machining the crankshaft in any other way to reduce weight or any other benefit is not permitted.

6.5.4 Pistons must be unmodified standard production or Wossner forged pistons.

6.5.5 Timing of the camshafts is to remain as standard.

6.5.6 The Flywheel is free.

6.5.7 It is permitted to baffle the standard sump and modify the oil pick-up pipe. Dry sumping is not allowed.

6.5.8 It is permitted to fit a remote oil filter assembly but must be located in the engine bay.



6.5.9 It is permitted to fit an oil cooler within the engine compartment

6.5.10 Inlet manifolds are to be standard. It is permitted to remove/replace the original air filter with a performance 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 and must remain standard.

6.5.11 Spark plugs are open to free choice but leads and coils must remain standard.

6.5.12 The turbo, all drive pulleys, drive belts and tensioners are free.

6.5.13 Fuel system to be standard Mini ALL4 Cooper S (for avoidance of doubt, this should be direct injection).

6.5.14 Injection of nitrous oxide or water is not permitted.

6.5.17 The clutch is free.

6.5.18 Water pumps are free but must remain within the engine compartment.

6.5.19 Standard drive shafts must be retained or standard aftermarket units

6.5.20 Short shift gear linkage is permitted.

6.5.21 Engine/gearbox mounts may be uprated to competition items but must be fitted to standard mounting points

6.6 Transmission

6.6.1 The gearbox must be of the type initially fitted and be in the original position.

6.6.2 Transfer boxes must be of the fitted type and in the original position.

6.6.3 Rear differentials must be of the fitted type and in the original position.

6.6.4 Limited-slip differentials are allowed to be fitted front and rear.

6.6.5 Standard Electromagnetic differential must be used, although fitment of a centre viscous coupling is advised to be fitted into the centre prop shaft.

6.6.6 Standard gearbox casing and all internals must be retained, and only 6-speed gearboxes are permitted.

6.6.7 Gearbox ratios and final drive must be the same as originally supplied for a standard mini R60 All4 Copper S. Gearboxes may be rebuilt with stronger bearings.

6.7 Suspension & Steering

6.7.1 The ride height may be altered.

6.7.2 Deleted.

6.7.3 Camber angle on the front and rear wheels must not exceed 4 degrees negative.

6.7.4 Competition bushes are permitted. Rose joints are not allowed, with the exception of as permitted in para 6.7.2.

6.7.5 Pressed steel suspension arms may be strengthened

6.7.8 Anti-roll bars may be fitted, providing they are standard Mini parts.

6.7.9 Front upper and lower strut braces are permitted, and their design and material are free.

6.7.10 Quick-release steering wheels are mandatory. The quick-release device must be coloured yellow.

6.7.11 The standard steering column must be retained, and the steering locks must be rendered inoperative. It is permissible to remove the PAS unit.

6.8 Brakes

6.8.1 Brake pads must be standard fitment & standard type, competition pads may be fitted.

6.8.2 Brake discs must be standard diameter, and pattern aftermarket ferrous discs may be used.

6.8.3 ABS braking is not permitted; therefore, ABS braking is to be disabled or removed. It is allowed to fit pressure limiting/apportioning valves to the rear brakes.

6.8.4 Brake hoses are free.

6.8.5 Brakes must be operative on all four wheels. Handbrakes are free and their operation and be of sufficient efficiency to hold the car on a slight gradient.

6.8.6 Pedal box assemblies are free, and servo units may be removed

6.9 Wheels



6.9.1 The wheel design and manufacture/supplier are free, but the diameter/width must not exceed 17 x 8 and offsets are free.

6.9.2 Wheel nuts must match the wheel used.

6.9.3 Wheel Spacers as per J5.8.2

6.10 Tyres

6.10.1 The controlled tyre manufacturer will be MRF Tyres. The **only** permitted tyre for use is the MRF branded MRF 'ZTR' RX tyre. Tyres must be purchased from Waltham Services – these tyres will be stamped to prove place of purchase and this will be monitored. Non-compliance will be considered a breach of the technical regulations.

6.10.2 The tyres are control moulded tyres and cannot be hand-cut at any time.

6.11 Electrics

6.11.1 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 vehicle's attitude following an accident. The switch must be clearly marked with a red spark on a white-edged blue triangle, and on/Off positions must be clearly marked.

6.11.12 The vehicle ECU is free.

6.11.13 All engine sensors and actuators are to be the standard units. Additional sensors are permitted, but changes to the engine running or mapping from a seated position must not be possible.

6.11.14 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 (or LED equivalent). The lights should be clearly visible from behind when the foot brake is applied.

6.11.15 A 'poor visibility' light must be fitted. Refer K5 complete.

6.11.16 Both charging and starting circuits must function efficiently.

6.11.17 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 the passenger compartment in a sealed box. The battery earth lead must be coloured yellow. Battery terminals MUST be covered

with insulating material. The battery must be securely mounted to the vehicle.

6.11.18 External circuit breaker must be fitted. Refer: - K 8.1, K 8.2, K 8.5.

6.11.19 Wheel sensors must be removed.

6.11.20 Wiring harness may be removed.

6.11.21 Launch control may be fitted via the engine ECU.

6.11.22 Anti-lag systems are not permitted.

6.12 Weight

6.12.1 Weight limits the minimum weight for car and driver, full racing apparel to be 1150kg.

6.13 Fuel Tank & Fuel

6.13.1 The standard petrol tank must be retained and in its original position. The fuel tank must have a protective guard.

6.14 Exhaust & Silencing

6.14.1 The exhaust is free after the outlet of the turbo but must exit at the rear of the vehicle and incorporate a catalytic converter. An effective silencer must be fitted to the vehicle at all times in accordance with Section J, page 148, appendix 1, chart 5.18, section F.

6.14.2 Exhaust Manifold must be standard Mini R60

6.15 Eligibility checks

6.15.1 All cars must have championship agreed studs, nuts and bolts drilled to enable seals to be affixed. Drillings must be of at least 3mm in diameter. Failure to have the following drilled is deemed to be a breach of vehicle eligibility.

6.15.2 The event organisers, and/or the Championship eligibility scrutineer / his representative reserve the right to make random eligibility checks and subsequently seal any parts for later inspection at any Championship round. Any components which are sealed, at any point in the Championship, will be checked within 30 days of the final round (subject to any extenuating circumstances which may result in a deadline extension being sought from Motorsport UK). All eligibility testing costs are borne by the competitor. It is a condition of entering the Championship that the competitor will submit any component and/or for sealing and later inspection when requested to do so.