

# 2009 MDA Junior Vehicle Regulations

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

Section C(b) 7. 8(a) – (h), 8(j), 8(k), 8(l), 9 – 26

Section C(c) 7 -25, 26, 27, 31 – 43, 44-51, 52-57, 66, 69 -71, 72, 73, 75, 76, 87 – 99, 103, 104, 105 - 116

Section E 110 -132

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**PLEASE READ THESE REGULATIONS THOROUGHLY. IF IT DOES NOT STATE YOU CAN, YOU CANNOT. IF IN DOUBT ASK.**

**Changes from 2008 regulations shown in *red*.**

## 1. Safety

**1.1.** A full roll cage with one diagonal brace and door protection bars complying to sections C(c).7 – 25 , C(c)2-43, (C(c) Appendix 2: Safety Cage drawing numbers 5 or 6 or 8 plus longitudinal members as 9) of the MSA 2009 Yearbook is mandatory.

**1.2.** A fire extinguisher **MUST** be fitted; the minimum specification must be to current MSA Regulations. ([C(c)56] Table 56(b)). The extinguisher should be retained by positive quick release brackets within reach of the driver while seated securely by their harness. The bracket is to be secured to the vehicle by a minimum of two 6mm bolts (Refer C(c).66)

**1.3.** Front windscreen to be either laminated glass or 4mm minimum thickness polycarbonate (Perspex®). Toughened glass is **NOT** permitted. For events held on grass polycarbonate windscreens may have apertures not exceeding a total area of 50 square inches. If a complete windscreen is fitted, an operative windscreen wiper is required. Tinted windscreens must not be used. A rear screen is not mandatory, but if fitted must be of 4mm minimum thickness polycarbonate. All cars are to be fitted with 4mm minimum clear polycarbonate side windows.

**1.4.** A full FIA homologated harness with a minimum of four separate fixing points, in accordance with the 2009 MSA Yearbook and currently FIA homologated (C(c).45) is mandatory. 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 greatest strength. The rear fixing of the seat belts must not be fixed to the rear parcel shelf or floor.

**1.5.** A competition seat with a built-in headrest must be fitted in accordance with C(c).50 MSA 2009 Yearbook. Seat runners / subframes must be securely mounted and held by spreader plates of adequate strength. Reclining seats are not permitted.

**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 either at the rear of the car, or below 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.

**1.7.** Both front and rear bulkheads **MUST** be effectively fire proofed, so as to seal off the drivers compartment from fire within the engine compartment and boot. Tape is not considered acceptable. Refer C(b).8c MSA 2009 Yearbook.

**1.8.** Vehicles must be equipped with a positive method of throttle closing in the event of a linkage failure, by means of an external spring to the throttle spindle. A secondary throttle return spring is strongly recommended.

**1.9.** A crash helmet to MSA requirements with appropriate approval stickers attached should be worn at all times during training, practice and racing. (Refer C(c).87 -96 MSA 2009 Yearbook.)All drivers must wear an approved visor or goggles unless the car is fitted with a complete polycarbonate windscreen. We strongly recommend that drivers wear a neck brace.

**1.10.** Clothing whilst driving must cover the arms and be fastened at the neck. Clean fire resistant overalls in accordance with Section C(c).77 – 86 MSA 2009 Yearbook are required. Competitors are strongly advised to wear flame resistant gloves, balaclavas and underwear. Plastic shoes (such as trainers) should be avoided.

## 2. Body Work and General

**2.1.** The outward appearance of the car must remain unaltered. Body shell to be standard Rover Mini Saloon shell only but excluding the Clubman shell. No material may be removed from the car which would substantially lighten it or detract from the vehicle's strength other than for the fitment of a one piece front as detailed in 2.3. Lightening or modification to the bulkheads, doors (see also 2.8), roofpanel, floorpanel, wings or any other body panel is prohibited, excepting longitudinal and transverse strengthening which is allowed within the driver's compartment only. 1 inch square box or 1.25 inch tubing can be used. Angle iron will not be permitted except longitudinally along the centre tunnel. The 'A' panels may be gusseted with maximum 1.6mm (16swg) sheet metal. The front bulkhead between the engine compartment and driver may be modified to accept an air box, the maximum dimensions of which shall be those of a standard Mini battery box, mounted horizontally, with a centre line

corresponding to that of the speedometer aperture. The rear side pockets may be removed down to the level of the floor together with the unsupported part of the rear seat pan. If not used, battery box may be removed and floor area plated over. **Original profile of boot floor must be retained.** Deseamed bodysHELLS will be permitted provided the Scrutineers are satisfied with the welding. No frontal reinforcement or any form of nudge bar will be allowed. Bumpers must be removed. The bumper mounting lip must either be removed or covered with a protective material (any other method that will ensure that the edge is not sharp will also be allowed)

2.2. Lightweight or fibreglass boot and bonnet may be used provided they are securely fixed.

2.3. A detachable one piece front (front panel, wings etc.) of fibreglass or metal may be used provided it is securely attached to the body and subframe. A panel of maximum thickness 2.0mm (14swg) may be fitted to the rear of the front valance no wider than the width of the front subframe to support the detachable front. Fixings at the front of the subframe to be by two individual pins which may not protrude forward from the bodywork. Brackets to be made from sheet material 2.0mm thickness and to form a box section. Such fronts must retain the appearance of the original body. Inner wings may be removed subject to fitting of strut braces as detailed (Fig 2.3)

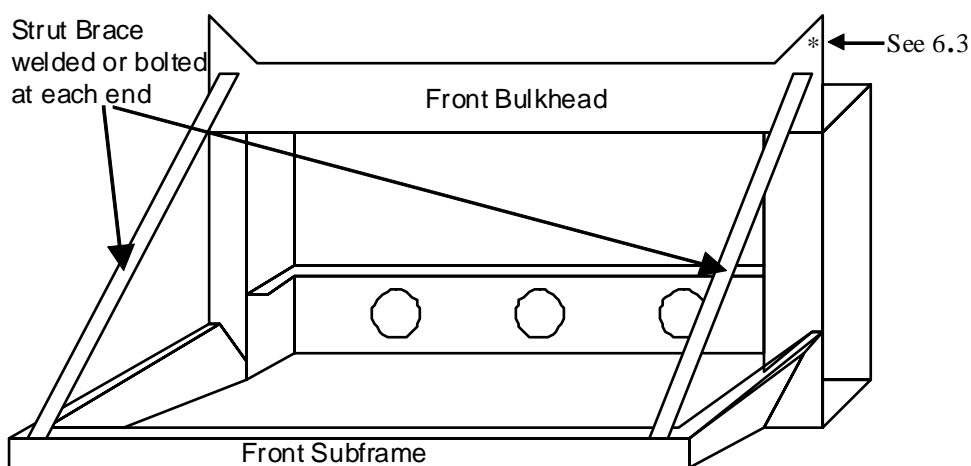


Fig. 2.3

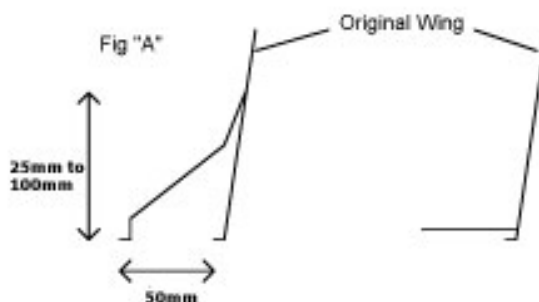
2.4. In order to ensure that the tyre does not extend beyond the bodywork, additions to the wheel arches are permitted, but must not extend by more than 50mm inches horizontally from the original line of the arch, when measured immediately above the centreline of the axle - Refer to Figure A. Also the additions should extend vertically by between 25mm and 100mm and blend into the original wheel arch. The new arch is to cover the tyre around an arc of 120 degrees. Straight horizontal extensions of the type shown in Figure B are not permitted. The original wheel arch profile must remain in place, that is, no metal may be removed. Plastic wheel arch additions of the type sold by Rover dealers and accessory dealers are preferred. ANY SHARP EDGES MUST BE PROTECTED BY PLASTIC OR SIMILAR MATERIAL.

2.5. Rear valances may be removed.

2.6. When a non-detachable front is retained part of the inner wing panel on the offside front may be removed to facilitate easier removal of the clutch, provided the rigidity and strength of the inner wing is not impaired.

2.7. All lights must be removed and the apertures blanked off.

2.8. All interior trim must be removed, including floor covering, head linings, passenger seats, padding, door panels and the like. Metal door pockets or internal panels may be removed provided the doors are suitably strengthened.



2.9. All cars must be fitted with one internal rear view mirror of at least 50 sq. 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 are allowed.

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.

2.11. Non standard petrol tanks may be used if securely fitted to the boot floor. Fibreglass or plastic materials are prohibited. Spill trays must be fitted to prevent spillage into the boot area during refueling.

2.12. Door handles must be retained, if the early type of moving door handles are used they must point rearwards.

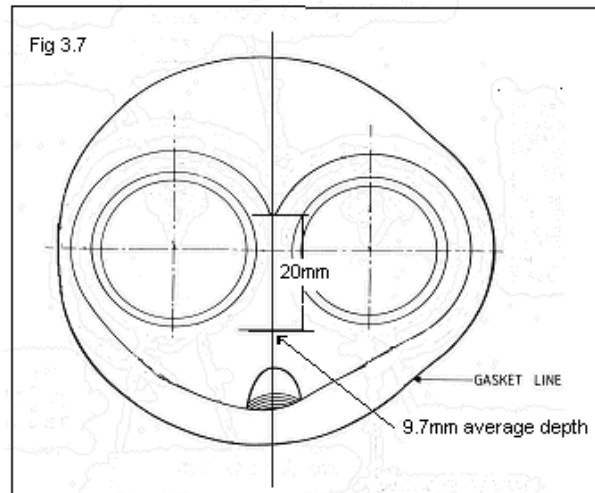
- 2.13. The exhaust outlet must be below the level of the floor and to the rear of the driver. The exhaust tail pipe is to terminate outside the bodywork periphery in plan view, not beneath.
- 2.14. An effective silencer must be fitted to the vehicle at all times in accordance with Section C(b).22 – 24 MSA 2009 Yearbook
- 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.
- 2.17. Instruments are open to free choice.
- 2.18. A sump guard may be fitted, but MUST NOT protrude beyond the bodywork.
- 2.19. Radiators must remain within the engine compartment. Auxilliary radiators may be connected to the heater outlets. Electric fans are permissible.
- 2.20. Competition numbers will be black, minimum height of 230mm with a width of 38mm placed on the sponsors background supplied by the MDA. It is also necessary for the competition number to be repeated on the nearside front of the roof.
- 2.21. The drivers name is to appear using 75mm high white self adhesive letters in both rear side windows.
- 2.22. Provision should be made for fitting of Sponsors decals as defined in Championship regulations. Decals will be supplied by the MDA. Cars not complying to this regulation will not be awarded Championship points.
- 2.23. Minimum weight of car including driver must not be less than 640kg. In addition minimum weight of car **excluding** driver must not be less than 570kg.
- 2.24. Mudflaps 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.

### 3. Engine and Gearbox

**NOTE:** Throughout this section, the words 'standard' and 'production' refer specifically to items manufactured by the Rover Group (or under its other previous names) and OEM suppliers and no other manufacturer.

- 3.1. A standard Mini / Metro 99H 998cc cylinder block is mandatory. Bore 64.59 mm (2.543ins) stroke 76.2 mm (3.0ins). Maximum permitted overbore is 1.02mm (0.040ins). Modifications to the cylinder block which are designed to provide clearance for valves (e.g. pocketing) or gas sealing rings are not permitted. Machining for a main bearing centre strap is allowed. The block may be surface ground but the pistons at top dead centre must be level with top of block or down the bore. Drilling into the oil pick-up gallery to facilitate the fitment of external oil pre-filter system is permitted. Dry sumping is not permitted. **No other machining or drilling of cylinder block is allowed.**
- 3.2. A standard production crankshaft with standard stroke 76.2 mm (3.0ins) is mandatory. Machining the crankshaft in any way to reduce weight or to balance or for any other benefit is not permitted. Polishing is not permitted. Crankshaft dampers are permitted.
- 3.3. Pistons must be unmodified Mini / Metro production or equivalent replacement pistons subject to maximum oversize 1.02mm (0.040ins). Pistons must have all rings in place. Forged or Race / Competition orientated pistons are forbidden.
- 3.4. Standard connecting rods must be used. Connecting rods may not be modified, lightened, balanced or machined in any way.
- 3.5. A control camshaft must be purchased from the MDA. All camshafts are numbered and recorded. The price for 2009 is £60.00. Camshaft lobes must not be reprofiled or retimed in any way. The camshaft must retain the standard method of valve train mechanism. Off-set Woodruff keys may not be used. Duplex chain or toothed belt camshaft drive is not permissible.
- 3.6. A standard Rover flywheel is mandatory and may not be lightened or modified in any way. Steel or alloy competition flywheels are not permitted.

**3.7.** A standard Mini/Metro 99H cylinder head casting no CAM4810 is mandatory. Only standard or standard replacement head gasket is allowed. The only machining which is allowed is to the block mating surface and valve seats for routine maintenance purposes only. Multi-angle valve seats are not permitted. The average depth of the combustion chamber measured at the point shown in Fig 3.7 must not be less than 9.7mm. This is calculated by measuring all the depths and divide by 4. It is accepted that these depths will vary therefore the average is used. Replacement valve seats may be fitted but must be level with the bottom of the combustion chamber. No other machining is allowed. Rough casting marks must be seen on both inlet and exhaust ports and in the combustion chamber. No gas flowing or polishing is allowed.



**3.8.** Rocker gear must be from any production "A" series engine and unmodified. Offset bushes and / or posts are not allowed. High lift rockers are not allowed. Welding of the top edge of the pressed steel items is allowed.

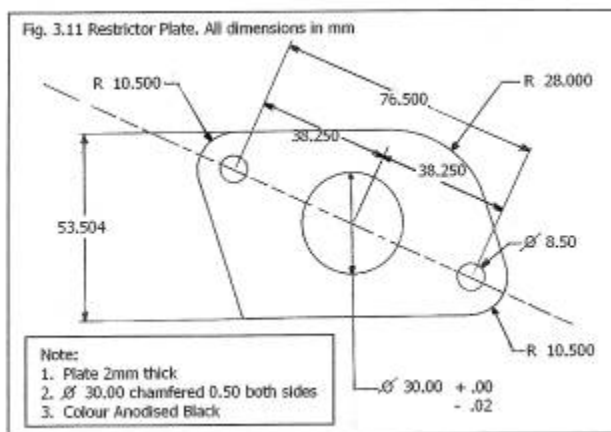
**3.9.** Valves are to be standard and vertical with a maximum size of 27.89mm (1.098ins) inlet, and 25.53mm (1.005ins) exhaust. Only single valve springs permitted. Valve guides must remain unmodified. After market guides may be fitted. Valve centres may not be moved.

**3.10.** Standard one piece cast iron inlet/exhaust manifold is mandatory and must not be modified. Twin outlet exhaust manifolds are not permitted. Exhaust systems are free but must comply with [C(6)] 22, 23, 24.

**3.11.** Carburation must be by any single S.U. carburettor with a maximum throat diameter of 1.5in. The throat, piston and butterfly may not be modified or machined. The principal of operation of the carburettor must remain unchanged, including the butterfly and piston. Air filters are open to free choice. Ram pipe may not be fitted.

A 3mm dia. hole must be drilled through the threaded end of the carburettor mounting stud.

A restrictor with internal diameter of 30mm (Fig. 3.11) will be supplied by the MDA for fitment between the carburettor and the inlet manifold. Restrictor must be fitted in the presence of an MSA Scrutineer and sealed to manifold with an MSA numbered seal. **Any modification to the restrictor is illegal.**



Carburettors may **only** be mounted in the following manner:

- 1 gasket mating to manifold
- MDA restrictor
- 1 gasket between restrictor & spacer
- 1 original Rover spacer of 9/16" (13.5mm) max. thickness
- 1 gasket between spacer & cable mounting bracket
- 1 gasket between cable mounting bracket & carburettor

Spacer may not be machined, bored, sleeved or modified in any way.

**3.12** The ignition system must use a standard Mini distributor using points for switching of the low tension circuit or a standard A+ distributor using it's electronic trigger for switching of the low tension circuit. It is permissible to replace points with an electronic trigger using either Lumination Magnetronic or Aldon Ignitor (**not Ignitor 2**). Ignition advance and retard must only be controlled by "bob-weights" and springs, with or without vacuum means. Any form of electronic management / control to modify ignition advance/ retard is not permitted. Distributor contact breakers must be connected directly to negative terminal of ignition coil.

Rev limiters, launch controls, full throttle gearchange control or any form of traction control or driver aids are not allowed

**3.13.** Spark plugs are open to free choice.

**3.14.** The ignition system may be protected from mud and water with card, plastic or a sheet metal deflector not exceeding 18cm x 18cm in area, with a maximum thickness of 0.8mm. Corrugation of the deflector is not permissible. Any additional material (including the deflector) placed in the area in front of the distributor, that is not part of the vehicle bodywork, must be seen to deflect under hand pressure. Consideration as to whether the deflector or its mountings are reinforcement is at the discretion of the Scrutineer.

**3.15.** Fuel pump(s) are open to free choice, but are not to be located in the passenger compartment / interior of the car.

**3.16.** Superchargers, turbo-chargers, injection of nitrous oxide or water are not permitted. Air may be ducted to the rear of the engine compartment, but ducting must terminate at least 6" (150mm) from any air filter system. There must be no more than one duct with a maximum diameter of 3"(75mm).

**3.17.** Fuel: Petrol as defined as 'Pump fuel' within the Terminology of MSA 2009 Yearbook

**3.18.** Standard A+ gearbox must be used with the following gear sets.

1 <sup>st</sup> motion shaft	17 teeth, laygear 30
1 <sup>st</sup> gear	15 teeth, driving 31
2 <sup>nd</sup> gear	21 teeth, driving 26
3 <sup>rd</sup> gear	26 teeth, driving 21

No other parts are permitted. Straight cut gears or five speed gearbox conversions are not permitted.

**3.19.** Standard transfer gears with 1:1 ratio must be used.

**3.20.** Final drive ratio to be 3.44:1. Locked or limited slip differentials or any other device intended to give a similar effect is not permitted,

**3.20.1.** After market conversions to stronger differential pins are allowed.

**3.21.** The clutch is free as long as the same number of driven plates as the production item are retained. The backplate is free within the range of standard Rover Cars parts. The diaphragm is free.

**3.22.** Standard mechanical water pumps must be retained

**3.23.** Engine mountings are free. Additional engine steady bars may be fitted.

#### **4. Suspension and Brakes**

**4.1.** Standard mini front and rear subframes must be used and may be strengthened. Flexible subframe mountings may be replaced with solid equivalents. Suspension parts must be standard Mini, retaining rubber suspensions, standard top arms and standard rear swinging arms. Standard suspension bushes may be replaced with uprated competition equivalents. Rear rubber cones may be softened. Negative camber bottom arms are permitted. Front tie rods are free choice. Adjustment is permitted to front and rear camber angles. Rose jointed components are prohibited.

**4.2.** There is free choice of brake linings and drums provided that the tyre does not protrude beyond the top edge of the wheel arch, including extensions. Brakes must be operative on all four wheels. An effective handbrake is obligatory. A TANDEM brake system is preferable so that in the event of a failure of one system, braking is maintained on at least 2 wheels on the vehicle. Brake bias valves are permitted but must not be capable of adjustment from the drivers seat.

**4.3.** Mini Cooper and Cooper 'S' brakes may be used as long as the vehicle complies with 4.8. Discs must be standard or standard replacement and be unmodified. Drilled or grooved discs are not permitted.

**4.4.** Power braking is not permitted.

**4.5.** The ride height may be altered provided adequate clearance exists between tyres and body. 'Hi-Lo' type suspension units are permitted.

**4.6.** Dampers are open to free choice. Coil spring / damper units are prohibited.

**4.7.** Anti roll bars may not be fitted.

**4.8.** Standard 4.5" x 12" steel wheels or 5.0" x 12" aluminium wheels are mandatory. Damaged aluminium wheels will not be accepted. Banded or welded wheels are not permitted. Wheel nuts must match the wheel used. Ensure regulation 2.4 complies.

**4.9.** Yokohama Tyres A048R control tyre is mandatory.

**4.10.** Wheel spacers are prohibited.

#### **5. Electrical Equipment**

**5.1.** 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 a minimum of 12 inches apart on the rear parcel shelf or HIGHER and clearly visible from behind when the foot brake is applied.

**5.2.** A 'poor visibility' light should be fitted according to Section C(c).69 - 71. in the MSA Competitors Yearbook 2009. The light should be switchable from the driver's seated position.

**5.3.** The use of a functioning dynamo, alternator or generator is mandatory.

**5.4.** A battery and self starter must be fitted and in working order and not of a temporary nature. The battery may be located either in the boot in the original battery box or in the passenger compartment. The battery earth lead must be coloured yellow.

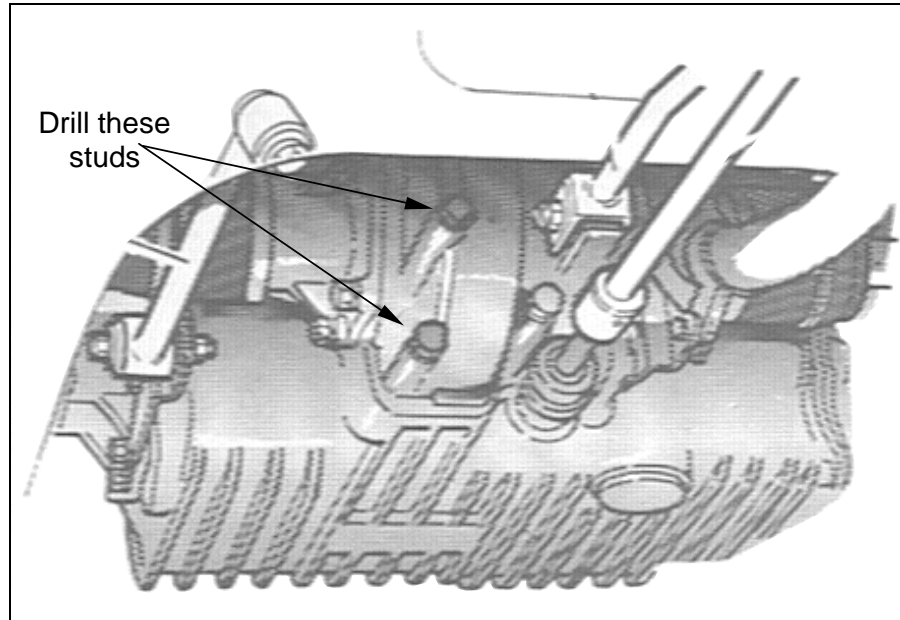
Battery terminals MUST be covered with insulating material. Insulating tape will not be permitted. **Battery must be securely mounted to the vehicle.** If mounted within the passenger compartment, battery must be fitted in a sealed non-conductive battery box.

## 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 Minicross Drivers Association 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. (Refer to Blue Book Section A.60(k) MSA 2009 Yearbook for guidance). 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 following studs, nuts and bolts drilled to enable seals to be affixed. Drillings must be of at least 3mm diameter. Failure of to have the following drilled is deemed to be a breach of vehicle eligibility.

Clutch Cover - The heads of two adjacent bolts on the top/front.  
Rocker cover - Both retaining screws.  
Differential - Refer to studs as per drawing.  
Carburettor - Any 2 fixing studs to the inlet manifold



Drivers may, if they so wish, elect at their own expense to have the above items sealed by an 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 C(b).3 - 4 MSA 2009 Yearbook..

6.4 The triangulation panel adjacent to the left hand front subframe top mounting MUST be drilled on the angled flange with a 2mm dia hole. Refer to figure 2.3. An MSA numbered seal will be fitted, and the number recorded in the vehicle log book.

6.5 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 Blue Book.