TAR OVAL REGULATIONS

Part 2 (Construction Regulations – CR's)

161737/144

The contents of this Hand Book take effect from 01st January 2019

Consult www.motorsport.co.za for category regulations, as well as any updates or changes made throughout the year.

CR1 DEFINITIONS

1.1 The only GCR's that apply to the interpretation of these class and construction regulations or the duties of officials and competitors in respect there to are **GCR's226, 245, 249, 255, and 257.**

1.2 Throughout these class regulations there will be reference to different types of engine e builds being:

1.2.1 The **stock** engine – which means that all the parts in the engines hall be standard or generally accepted replacement parts for stock vehicles;

1.2.2 The **modified** engine – which means that he parts utilized may at the discretion of the competitor be either standard or race parts

1.2.3 The **open** engine – which as the name implies means that there are almost no restrictions to the manner in which the engine is built.

1.3 The regulations also refer to differing vehicle construction as follows:

1.3.1 **Original road going vehicle** – these vehicles are ordinary road going vehicles that have been converted to race cars. The key element of this type of vehicle is that he suspension pickup points have not been altered or connected to any of the roll cage pipes;

1.3.2 **Semi-space frames**–these vehicles are original road going bodies that have evolved to a point where the suspension pick up points have been altered or where these points are connected to the roll cage pipe work. Included in this class of vehicle is the front wheel drive body shell that has been made rear wheel drive;

1.3.3 **Space frames**– these are purpose built racing chassis; and

1.3.4 **Open wheelers** – these are purpose built chassis designed for open wheel racing.

1.4 The regulations will refer to the following types of body shells:-

1.4.1 **Stock bodies**–this means that the vehicle must be clearly recognizable as an original road going vehicle as the rear fenders ,roof, all fender walls ; bulk heads and roof pillars must still be present;

1.4.2 **Replica bodies**–this means that the whole body or sections thereof may be replaced with a moulded copy of a vehicle. These are typically used with space frames;

1.4.3 **Plated bodies**–these vehicles are also typically space frames and have flat metal sheet or other materials as permitted in their class regulations fitted to cover the frame. These vehicles typically present in a wedge design; and

1.4.4 **Open wheel bodies** – these vehicles have a cover over the engine bay and a separate cover over the rear fuel tank area. The side soft he vehicles are usually plated.

1.5 The following applies in respect of the type of part that may be used:

1.5.1 **Purpose made parts** – these parts are those that the competitor makes himself or has made.

1.5.2 **Race parts** – these parts are made specifically for racing.

1.5.3 **Standard parts** – these are original equipment or generally accepted, commercially available, proprietary branded, replacement parts, which specifically excludes any purpose made or racing parts. These parts may be further limited to:-

1.5.3.1 **Vehicle specific standard parts** – which mean that parts specified for the particular make of vehicle or engine must be used;

1.5.3.2 **Brand specific standard parts** – which mean that parts specified for the particular brand of vehicle or engine may be used. By way of example this means that any component from any Ford may be used in a Ford.

1.5.3.3 **Class specific standard parts** – means that any part which in its own right would qualify as a standard part may be used. These parts are used when for instance the regulations specify that the choice of brakes is free with in the general choice restrictions of the class.

1.6 Throughout these regulations frequent reference is made to fiberglass. The term “fibreglass” must be regarded as a collective word for all forms of suitable composite materials, including carbon fibre and Kevlar™.

1.7 Throughout these regulations references is made to sheet metal. Aluminium sheet may also be used instead of metal sheet.

1.8 Throughout these regulations reference is made to the inside or outside as it relates to vehicles.

Over and above the plain meaning of the words relating to whether or not something is inside or outside something the words, depending on the context, relate to a specific side of the vehicle. The term outside relates to the left side of the vehicle that is raced in a clock wise direction.

CR2 NUMBERS, NAMES, MARKINGS, ADVERTISING AND SLOGANS ON VEHICLES / PAINTING OF VEHICLES

2.1 **Please also refer to GCR’s 246 to 249.**

2.2 Numbers:

2.2.1 Competitors must realize that the number is the primary means of identification in respect of scorers, officials, fellow competitors and the spectator. A look at any track will reveal many similar looking and similarly painted vehicles – only the numbers are unique. Competitors should strive towards making the number a feature of their vehicle.

2.2.2 Vehicles will be identified by means of a number as per the National number system. There will be no venue prefix to reflect the competitor’s registered home base. MSA will administer the competitor numbers and all drivers must comply with the MSA number system,

NOTICE NATIONAL NUMBERING SYSTEM

EXPLAINED

NN1 The objectives of the system are:

1.1 To create a unique race number for each competitor;

1.2 To aid competitors in creating awareness about themselves;

1.3 To assist event officials by removing duplicate numbers and there by potential errors and

1.4 To assist commentators and the public by improving the identification of the competitor.

NN2 The numbers remain allocated to a competitor as long as he or she races.

2.1 Where the competitor becomes an SA champion (ends second or third in the series) the race number will remain allocated to him even though he is entitled to use the SA number.

2.2 Should an existing competitor move to another class he may take his number into that class if it is open in that class. Where a competitor participates in more than one class he will be required to have a single number in all the classes and will be reallocated a number.

NN3 Numbers are allocated as follows:

3.1 It is recorded that there has been a process whereby competitors who have achieved success in the sport have been given preference. This process is now complete. From now onwards it is first come first served.

3.2 As stated, competitors who are already on the National Number data base who continue to compete in the same class or classes will automatically be reallocated their number on a year by year basis.

3.3 New competitors as well as those whose information is not yet on the data base should contact CHD.

3.4 The number selected will be reserved for 14 days in order to allow the competitor to obtain his license. There after the number will be free.

NN4 The number system is being unified as follows:

4.1 When one of the drivers cease competing or fails to renew his license the number in that class will be closed. This process will continue until each number is used only once.

4.2 New numbers are allocated to a driver and are immediately closed to all other classes.

CR.2.2.3 Numbers shall be positioned as set out in the relevant class regulations. Should the number not be visible to the lap scorer – the competitor would not be scored.

2.2.4 There are two definite styles of numbering permitted being:

2.2.4.1 The typical USA / UK oval racing style where the numbers are very stylish and very large on the door panels of the car. The numbers are applied directly on to the bodywork. These numbers shall always be of contrasting colours and be highly visible in the prevailing race conditions and light conditions.

2.2.5 The minimum dimensions of the numbers area's follows:

2.2.5.1 When applied directly on the body work – **400**mm high with a stroke of **75**mm;

2.2.5.2 When applied onto a back ground colour the end plate of awing – **300**mm high with a stroke of **50**mm;

2.2.5.3 On the sun visor panel or front wing (specific to open wheelers) – As large as the dimensions will allow.

2.2.5.4 The size of the pre fix is free.

2.2.6 All numbers shall be in position when the vehicle is presented for scrutiny. Modifications may be required because of observations made by the lap scorers. Numbers shall be placed on the section of the body that is mainly vertical. This means that numbers should not be applied on wheel acres and other similar rounded areas. The number should be visible to the public and the crowd from a position on the ground as well as in the stands.

2.2.7 The South African Champion or the National Class champion shall carry the number "SA 1" on his vehicle. The competitors who finished second and third in the National Championship Series shall carry the numbers "SA 2" and "SA 3" on their vehicles.

2.2.8 The numbers 1, 2 and 3 may not be used outside of the above regulations. No number that would create the impression that the competitor is a champion may be used. It follows that for instance the number 0, 1, 2 and 3 cannot be used under any circumstances. No zero's may be placed in front of any competitors number. The number 0 should normally refer to the pace car. No other numbers are to have the prefix S.A or Z.A. on a car.

2.2.9 No cars displaying ZA numbers will be allowed to race on any MSA event.

2.3 Names:-

2.3.1 The name and surname of the competitor shall be painted or sign written as follows:

2.3.1.1 Saloon vehicles – on to either the whole of the sun visor panel, or on the spectator side of the roof just above the door or on the replacement window panel in the rear door that faces the spectators.

2.3.1.2 Onto the lower, forward area of the end plate of open wheeled vehicles on the spectator side.

2.3.1.3 Dimensions of letters to be a minimum of 150 mm high with a 25 mm stroke.

2.4 Advertising, Logos and slogans:-

2.4.1 The club logo may be added alongside the name.

2.4.2 Advertising is permitted on all vehicles. The advertising shall not interfere with the numbers at all.

2.4.3 In respect of advertising GCR 246, 247 and 248 apply.

2.4. No rude or offensive logo's, signs, slogans, commentating or similar items/acts, are allowed.

2.4.5 As a guide to competitors and officials the following:

2.4.5.1 Swear words, even if disguised by as the risks and other symbols are regarded as rude;

2.4.5.2 Any blatant reference to sex, the sexual act or the naked body shall be regarded as offensive;

2.4.5.3 Any reference to race is offensive;

2.4.5.4 Any reference that belittles or pokes fun at the belief or religion of another shall be offensive. It is however acceptable to state your own personal believes (irrespective of what that is).

2.5 Specific markings required:-

2.5.1 Competitors using methanol as fuel shall display aluminous or a gedot, with a minimum diameter of 300 mm on both sides and on the roof of the vehicle. The wording “Me” or a black lightning bolt shall be printed on the dot. The letters or the bolt shall be at least 175 mm high and have a stroke of 30 mm.

2.5.2 Rookie competitors in saloon classes will mount a 45 x 30 cm yellow flag to the middle of the boot lid. Rookie competitors in the open wheel classes will mount the flag into the top of the rear push bar. In the micro midget class the flag will mount on to the rear wing. In all cases the flag pole used shall have a suitable means of preventing the flag from becoming dislodged.

2.6 Vehicles shall be neatly painted and presented in an acceptable condition to the Scrutineers of an event. Competitors who are part of teams must ensure that steps, other than the numbers, are taken to differentiate between the teammates.

CR3 MIRRORS

3.1 Rear view mirrors are not permitted in open wheel classes. Rear view mirrors may be fitted to other classes but may not protrude outside the widest point of the vehicle. Mirrors may not exceed 300 cm 2.

CR4 WHEELS AND RIMS

4.1 Double wheels are not permitted. Hence all vehicles must have two front and two rear wheels only.

4.2 All wheel nuts shall be machined in order that the scrutineer can determine the length of the studs. All wheel nuts are to be fitted. The stud thread shall be in good order and when the nut is in place at least 100 % of the diameter of the nut or 20-mm of thread shall be engaged whichever is the greater. In cases where the wheel is fastened by a stud turned into the hub or drum the same regulations in respect of the engagement of the stud shall apply.

4.3 The width of the rim may not exceed the tread width of the tyre utilized with that rim. Officials and competitors should note that this measurement is taken where the tyre seats and is not the distance between the outside edges of the rim.

4.4 Bead lock rims are only permitted on open wheel vehicles and in the classes where they are specifically permitted. The introduction of bead lock rims in the open wheel and hotrod classes have created unforeseen problem in that the fastener on the lock rings have in many cases been responsible for flat wheel sand / or rim damage for other competitors. Measures must accordingly be taken to address the problem. Hence it is necessary to introduce a regulation that compels the competitor who wishes to use lock rings to make the ring thick enough so that the head of the fastener can be counter sunk to a depth where it does not pose a threat to a fellow competitor. The head of the fastener used shall be counter sunk to at least 80 % of the depth of the head. The head shall be bevelled or chamfered.

4.5 Only steel and aluminium wheels would be allowed.

CR5 WHEEL SPACERS AND WHEEL ADAPTERS

5.1 Wheel adapters and spacers are permitted.

5.2 Wheel adapters must be made of steel and may not exceed 25 – mm in thickness.

5.3 Wheel spacers maybe made of steel or aluminium and shall be flat and have a maximum thickness of 65 - mm.

5.4 Adapters and spacers must be stepped to locate the wheel.

5.5 Both these parts may not be fitted to the same wheel simultaneously.

5.6 High tensile steel cap screws shall be utilized to replace wheel studs, a fix adapter, or fit the wheel if any form of spacer or adapter is used.

CR6 TYRES AND SUSPENSIONS

6.1 Tyres may not protrude beyond the wheel arch or body work in all saloon class categories.

6.2 Tyres other than slicks shall have a minimum of 2 mm of standard tread pattern visible and capable of measurement across at least 75% of the width of the tyre when submitted at scrutineering. Scrutineers shall refuse any tyre that has reach end the tread wear indicator.

6.3 All tyres and replacement wheels shall be presented unmarked at scrutineering and may be marked at scrutineering, if they comply with these regulations.

6.4 The tyre manufacturers original extruded side wall markings, indicating manufacturer's details, size, profile, country of origin, ratings, serial numbers and batch codes may not be removed or altered.

6.5 Any chemical treatments or any means to artificially enhance tyre performance is prohibited. Buffing or skimming is permitted. No grooving is permitted.

6.6 Where ever a class regulation refers to a tyre size, such tyre size shall be determined by reference to the extruded tyre markings made by the manufacturer and not physical measurement. Not with standing this regulation, a scrutineer or a technical representative shall be entitled to measure tyres for compliance with manufacturer's specifications. The only exception to this regulation is rethreaded tyres where the width of the rethreaded portion shall be measured for compliance with width regulations.

6.7 The tyre aspect ratio is free.

6.8 The use of nitrogen in tyres is permitted.

6.9 The following tyre types are, subject to the stipulations contained in the specific class regulations, available to competitors:-

6.9.1 **Road legal tyres**, described as tyres which are designed for road going use in terms of accepted International standards. Any tyre that has an inscription specifying that it is only for competition use or is not permitted on highways is a race tyre and may not be used. It is brought to the attention of competitors that the commonly used "M + S" inscription relates to the tyre's performance in mud and snow and does not sign if ya race tyre. Please also note the tyres that only comply with the USA DOT certification are not considered road legal in South Africa and hence do not comply with this regulation.

6.9.2 **Race tyres**, described as tyres manufactured by are cognized tyre manufacturer, which are designed for race use only. These tyres can be slick tyres for use on tar or treaded for use on dirt. Such tyres must be generally available to all competitors. Please refer to the specific class for details of the tyres that are permitted.

6.9.3 **Rethreaded tyres**, described as tyres, retreaded in the Republic of South Africa by recognized locally domiciled ret readers. These tyres shall comply with the relevant Traffic Act/SABS standards and be distributed to the general public for that purpose. It follows that such tyres must be generally available to the public at reputable commercial tyre dealers or retreaders. Imported casings are permitted. Race tyres may not be used as casings. These tyres are not permissible for tar events.

6.10 The regulators are concerned that certain competitors may achieve an unfair advantage by importing special tyres albeit that the tyres are road legal in the country of origin. This was never the intention of the rule. Competitors and officials are reminded that the choice of tyres is restricted to tyres that are available to the general public at the leading franchise tyre operations in South Africa. Hence if you need to place special orders for tyre or need to import them yourself you may not use the tyre. Tyres may not be skimmed.

6.11 Where a maximum tyre quantity is permitted the event regulations should specify when competitors become locked in to the tyres, failing which it is at scrutineering of the car.

CR7 SUSPENSION / RIDE HEIGHT

7.1 **Suspension** design is free subject to class regulations.

7.2 Coil and leaf spring rates are free in the classes where they are allowed. (Not in Stock Rods).

7.3 Front and or rear strut towers may be braced from one front strut other opposite strut. (Not in Stock rods).

7.4 **Ride height may** be made adjustable by using a threaded pipe to adjust the spring saddle.

7.5 Ride height is free. Vehicles are not permitted to scrape on the track at any time including cornering and braking. A vehicle that causes sparks due to being too low shall be stopped by the race officials.

CR8 EXHAUST & SILENCER

8.1 The exhaust pipe shall be securely fitted to the vehicle and shall preferably be mounted above the floor pan of the vehicle to avoid the loss thereof.

8.2 A suitable metal plate mounted away from the exhaust in order that it acts, as an effective heat shield shall cover the pipe inside the driver's compartment.

8.3 Vehicles that have the exhaust below the floor pan shall fit saddles to the front and rear of the vehicle to retain the **exhaust system** should it break or fail in any other manner. Material to be 25 mm wide and 3 mm thick metal. Saddles are to be properly bolted to the vehicle.

8.4 Competition **exhaust manifolds** are permitted where the class rules allows it.

8.5 Exhaust tailpipes passing out the side of the car may only do so at a maximum height as measured from the top of the pipe to the floor. This height is 500 mm on tar cars. This rule is clarified to mean that the maximum height of the exhaust is reflected in the rule. It may be lower than the height. It may also not point to the face of another competitor.

8.6 All race cars, other than sprint cars, must be fitted with a silencer. The silencer should have a perforated pipe between the front plate and the back plate of the silencer box. Noise may not exceed 109 Db measured 1 meter above ground level at the starters box with the vehicle passing by at full speed notwithstanding the fact that the cars must comply with the rules as set out in the MSA environmental requirements. Competitors racing in Cape Town are restricted to 105Db.

CR9 BRAKES

9.1 Effective braking is mandatory on all 4 wheels of saloons. For open wheelers please refer the specific class regulations.

9.2 Only driver operated brake balance / bias adjustment systems are permitted.

9.3 ABS is not permitted in any class.

9.4 Copper brake lines or pipes are not allowed.

9.5 Pedal boxes are free.

CR10 TRANSMISSION

10.1 Only two-wheel drive is permitted.

10.2 Differentials may be locked.

10.3 No sequential gearboxes or traction control systems are allowed in not allowed in the class rules.

10.4 Clutch driven plates are free. All saloon cars must be fitted with a working clutch.

CR11 CARBURETION/ FUEL INJECTION/ IGNITION

11.1 The use of Nitrous oxide or water injection is not permitted.

11.2 Swirl pots / anti surge tanks are permitted, provided that they in no way aid fuel cooling.

11.3 No fuel cooling whatsoever is allowed.

11.4 Fuel pressure regulators are permitted.

11.5 Induction and ram tubes are free unless specified by a class regulation.

11.6 Fuel and air filters are free and may be fitted at the discretion of the competitor.

11.7 Fuel pumps are free in respect of means of operation and capacity;

11.8 Mechanical fuel injection is permitted unless prohibited by class regulations.

11.9 **Carburettors**

11.9.1 The class regulations state the limitations that apply to carburettors and intake manifolds. Subject to these limitations the carburettors and intake manifolds are free.

11.9.2 Carburettor jets and needles are free and the carburettor may be modified but the operating principle must remain as standard.

11.9.3 Dellorto and Weber carburettor parts may be interchanged.

11.9.4 The internal diameter of choke tubes is subject to class regulations. The internal shape of the choke tube shall have a radius curve leading from the outside of the choke tube to a point where the internal diameter is at the minimum size set out in the applicable class regulation. The parallel section shall remain at that diameter for at least 2mm. It is recognized that most choke tubes are purpose made. However, it is imperative that the choke tube retains a smooth finish and no grooves or holes may be drilled or cut into the internal portion of the choke tube. Otherwise stated it is the clearing tension of the regulations that all air that passes into the carburettor (directly or in directly) shall pass the section of the choke tube where the diameter of the tube reaches the minimum set out in the applicable class regulation.

11.10 **Fuel Injection**

11.10.1 These regulations and the class regulations may limit various aspects of fuel injection systems and intake manifolds. Subject to these limitations the fuel injection systems and intake manifolds are free.

11.10.2 Where the class rules allow fuel injection, individual throttle bodies, butterflies, rollers and slides are not permitted on the 1660 and 2.1 class. It is recommended the original intake manifold may be used for fuel injection; however homemade intake manifolds are allowed limited to the throttle body sizes specified. . These may be ported and/or flowed. A single throttle body, not exceeding 60mm, may only be used in the 1660 class and 70mm. in the 2.1 class.

11.10.3 Competitors may elect to install two injectors per cylinder in classes where fuel injection is permitted, provided they operated from a single controlling source.

11.10.4 No secondary injection systems are permitted, unless permitted in class regulations.

Secondary injection is defined as:

11.10.4.1 The use of more than one system to activate / operate more than one injector per cylinder to in put the fuel into the cylinder; or

11.10.4.2 The injection of water or methanol together with the fuel utilized with the latter option is only allowed to turbo charged engines.

11.10.5 Subject to these limitations and the relevant class regulations the injection is free.

11.11 **Ignition**

11.11.1 The ignition regulations are specified with in each class regulation.

11.11.2 In all cases where standard (original equipment) or specified ignition units are stipulated these units shall remain completely unaltered. Any sign of tampering or unauthorized modification will be regarded as cheating.

11.11.3 Where standard ignition is stipulated all the sensors that make up the ignition system shall be standard parts specified for the particular engine utilized. The crankshaft position sensor may be removed from the flywheel and replaced with a timing disc and pick-up at the crank shaft pulley. In this case steps must be taken so that the unit can be sealed by the technical team.

11.11.4 The ignition system must be visible and accessible for removal. The technical consultant is authorized to check the unit and the wiring at any time during an event.

11.11.5 All engines must have a fixed T.D.C. mark on the front of the engine.

11.11.6 Aftermarket ignition is permitted unless prohibited in a class.

11.11.7 Ignition systems may in corporate rev limiters and may be programmable for timing only.

11.11.8 Engines that do not have distributors in standard donor form must use a sensor on the crank shaft pulley or crank shaft damper only.

11.11.9 Any electronic device that controls more than just the supply of spark to the engine (and the permitted rev limiting function) is deemed to be an engine management system.

11.12 **Electronic / Engine management**

11.12.1 Whenever the regulations allow engine management systems these systems are (unless otherwise stated) limited to systems that are sold, serviced and supported in South Africa.

11.12.2 No system that would permit any form of traction control or administer any form of control over the braking system is permitted. ABS brakes are not allowed.

11.12.3 No electronic attachments or sensors may be affixed to the axles or wheels.

11.12.4 In all cases all auxiliary inputs and out puts should have values set to have absolutely no effect on the operation of the engine, gearbox, differential or brakes.

11.12.5 The system shall have a plug where a computer or controller can be plugged in to the system.

11.12.6 Telemetry systems are not permitted. DATA LOGGING is defined to be the recording of engine information such as temperature and pressure in electronic format capable of being accessed by computer. Displays indicating such information are permitted

11.12.7 The control unit for the ignition / engine management may not be connected to carburettors, brakes, manifolds, gearbox, drive train or wheels through means other than the permitted sensors. The unit as well as all wires connected thereto shall be visible and accessible for removal.

CR12 FUEL AND FUEL ADDITIVES

12.1 Generally please refer to GCR 240. Maximum of 95 octane.

12.2 Throughout these regulations pump fuel shall mean a petroleum fuel dispensed from a filling station pump, in terms of the fuel sale and distribution regulations of the Republic of South Africa. Such fuel may be of unleaded or lead replacement type.

12.3 Fuels are allocated per class – please refer to the annexure at the end of each class.

12.4 Organizers who run Non National championship club classes shall specify the fuel to be used in that class.

12.5 No diesel is permitted. No ethanol is permitted. No toluene is permitted in any fuel.

12.6 Methanol is permitted provided:-

12.6.1 That the specific methanol safety features are in place at the venue; and

12.6.2 That the specific clothing regulations are complied with; and

12.6.3 That the vehicle is marked for methanol; and

12.6.4 It is permitted in the class regulations.

12.7 Only a single type of fuel is permitted, meaning that, as an example, no methanol may be introduced in to race fuel by any means at any stage of the induction / combustion process. Different brands of fuels may be used

12.8 The only permitted additives to fuel are:

12.8.1 To race fuel (inclusive of LL100)–Proprietary branded upper cylinder lubricants / two stroke oil;

12.8.2 To pump fuel (as the specified fuel) – Proprietary branded upper cylinder lubricants / two stroke oil;

12.8.3 To pump fuel (when other fuels are also permitted) – proprietary branded octane boosters and Proprietary branded upper cylinder lubricants / two stroke oil;

12.8.4 To methanol – Proprietary branded oils / two stroke oil / castor oil / vegetable oil

12.9 Fuel testing

12.9.1 Fuel shall in the first instance be checked by using a Digitron fuel conductivity meter and/or measuring the specific gravity of the fuel. The results of this method of testing shall be used by all race officials to decide whether fuels are compatible with clean fuels supplied by organizers.

12.9.2 A competitor shall have the right to invoke the testing procedure set out in GCR 240. Such procedure shall be at his expense. In order to invoke this procedure he shall lodge a deposit of R10 000 (ten thousand Rand) with MSA through the stewards of the event.

CR13 TOW HOOKS & REMOVAL OF VEHICLES

13.1 All vehicles shall be fitted with a clearly marked towing eye, painted bright yellow, front and back, in order that recovery vehicles may drag stranded vehicles off the circuit with the least delay. Such towing eye shall not protrude from the front or back of the vehicle. It is suggested that properly supported flat bar attached to the roll cage post would provide an ideal means of dragging a stricken car of the circuit using a webbed tow rope.

13.2 All vehicles shall be fitted with eyes or hoops in the engine compartment, painted bright yellow that would enable the vehicle to be lifted by a break down vehicle. This is especially necessary in space-framed vehicles. These eyes or hoops shall be affixed in line with the chassis rails. The hoops may be replaced by permanently fixed straps that are mounted on to a suitable point in the vehicle.

13.3 Vehicles may also fit an overhead, roll cage mounted towing eye. The eye must be able to accept a D shackle.

13.4 This regulation shall not apply to classes that have external bumpers.

CR14 WEIGHT REGULATIONS

14.1 Each set of class regulations specifies a minimum weight for the class–please refer.

14.2 Ballast weight may be made non removable by being poured into the pipe work of the chassis.

14.3 The following applies to removable ballast weights:

14.3.1 Lead blocks shall be used and mounted above the floor;

14.3.2 The ballast shall mount under or immediately in front of the driver's seat; and

14.3.3 The ballast will be secured with10mm high tensile bolts and tear plated. There shall be at least two bolts per 10kg block.

14.4 Where weights are to be checked the SR's for the event shall stipulate which scales are to be used and these scales shall be the only point of reference for all matters arising from any weighing. The organizers shall be obliged to have properly certified test weights available.

14.5 Weight shall include the driver and the vehicle will be in an as raced condition.

CR15 SPECIFICATIONS OF A STOCK ENGINE

15.1 Any normal production type engine is allowed. The class regulations should be consulted for minimum number of engines that have had to be manufactured for an engine to be used. The onus is on the entrant to prove the source and history of an engine.

15.2 A STOCK engine is viewed as a single unit comprising a cylinder block and a cylinder head (or heads) that were designed and manufactured by the manufacturer concerned for use with each other. Hence cylinder heads from another type of engine may not be substituted,

irrespective of whether or not they fit onto each other. Similarly cylinder blocks from another type of engine may not be substituted. Ford to Ford and Nissan to Nissan. No adapters etc. are allowed. Cylinder heads from the same manufacturer may be interchanged on different engines from the same manufacturer, providing it is a straight bolt on.

15.3 The following modifications may be made to stock engines:-

15.3.1 The cylinder head may be skimmed.

15.3.2 Compression ratios are free.

15.3.3 The cylinder head ports may be modified no further in than a distance of 20mm inwards of the valves outer edge. Cylinder head port faces and manifold port faces maybe blended together for a maximum of 10mm into either the cylinder head port or manifold port.

15.3.4 Pistons may not be pocketed for valve head clearance.

15.3.5 Camshaft profiles are free but the number of lobes and their location may not be altered. The cylinder head may be relieved if required by a change of camshaft.

15.3.6 The adjustment of valve timing by means of vernier gears or off set keys is permitted.

15.3.7 Camshaft timing adjustment is free and the camshaft drive may be modified for adjustment purposes.

15.3.8 The cylinder head valve seats may be modified. However, only 3 angled seats are permitted.

15.3.9 Valve seats inserts are permitted to address unleaded fuel concerns.

15.3.10 The method of valve tappet clearance adjustment may be modified.

15.3.11 Tappet or valve covers are free as long as the cover is not a part of the valve train.

15.3.12 Solid valve lifters may be substituted for hydraulic valve lifters and vice versa.

15.3.13 The cylinder block may be skimmed / decked.

15.3.14 Oil sumps, baffles and oil pickups are free. Sumps are free in respect of volume and design.

15.3.15 The removal of metal to balance internal engine reciprocating components is allowed. (Subject to your class rules)
To clarify this means that the crank shaft may be drilled / ground to balance. Pistons and connecting rods may be machined to achieve quality of weight. However one piston and one connecting rod that need not be attached to each other must be left untouched.

15.3.16 The shot opening and not riding of internal engine components is allowed. Knife edging however is not allowed.

15.3.17 A flywheel shall be fitted. Please consult the class regulations for weights and type permitted.

15.3.18 All fasteners (Nuts, Studs & Bolts) are free. The gudgeon pin may be made floating.

15.3.19 Pulley sizes are free.

15.3.20 Flexible engine mountings may be made solid.

15.3.21 No forced induction such as turbo charging or super charging is allowed, unless specifically allowed in the class regulations.

15.3.22 Oil flow restrictors in the cylinder head are permitted.

Restrictions:

15.4 The following restrictions are imposed on modifications to stock engines:-

15.4.1 The inlet and exhaust valve head and stem diameters shall remain as specified for the engine utilized. The valve may not be flowed.

15.4.2 The cylinder block may be bored to fit he standard piston stipulated in the manufacturer's specifications plus 1.52 mm;

15.4.3 Pistons shall be as per original manufacturer's specifications in respect of sizes and shape. The maximum over size is the manufacturer's specification for standard plus 1.52 mm.

15.4.4 Connecting rods may not be substituted and shall remain standard, but for balancing.

15.4.5 Crank shafts shall remain as standard but the journals may be resized to manufacturer's specification.

15.4.6 All parts other than the camshafts and cam drive gear shall be according to standard specifications.

15.4.7 Roller rockers, billet steel crank shafts and cast steel connecting rods are not permitted even if the donor engine had these fitted in original equipment form.

15.5 The following applies to the ancillaries of stock engines:-

15.5.1 Only standard water pumps are permitted. No electric water pumps are allowed.

15.5.2 Alternators, power steering pumps and air conditioning pumps may be removed.

CR16 SPECIFICATIONS OF A MODIFIED ENGINE

16.1 Any normal production type engine is allowed. A minimum of 5000 of such engines shall have been manufactured internationally and the con fusion the entrant to prove the source and history of an engine. In view of the fact that cylinder heads may be changed the legality or other wise of an engine will be determined by the cylinder block.

16.2 The cylinder head may be substituted with another cylinder head from the same manufacturer's brand. This is clarified to mean that any cylinder head of the same manufacturer's brand as the cylinder block can be interchanged as long as the cylinder head and the cylinder block comply with the engine units criteria set out above and absolutely no modification to anything of her than minor modification to improve the alignment of the oil and water passages is required to neither the block or the head to fit the cylinder head. The bolt pattern of the head and the block must be identical.

16.3 The following modifications may be made to modified engines:-

16.3.1 The cylinder head may be skimmed.

16.3.2 The cylinder head ports may be modified.

16.3.3 Porting and polishing of cylinder heads and manifolds are permitted.

16.3.4 Cam shaft profiles are free provided the number of lobes and their location are not altered.

16.3.5 Cam shaft timing adjustment is free and the cam shaft drive may be modified for adjustment purposes.

16.3.6 The adjustment of valve timing by means of vernier gears or off set keys is permitted.

16.3.7 The cylinder head valve seats may be modified.

16.3.8 Valves are free.

16.3.9 The inlet and exhaust valve head and stem diameters are free.

16.3.10 The method of valve tappet clearance may be modified.

16.3.11 Solid valve lifters may be substituted for hydraulic valve lifters or vice versa

16.3.12 Roller rockers are permitted.

16.3.13 Tappet or valve covers are free as long as the cover is not a part of the valve train;

16.3.14 Pulley sizes are free;

16.3.15 The cylinder block may be skimmed / decked.

16.3.16 Pistons may be pocketed for valve head clearance.

16.3.17 Pistons are free.

16.3.18 Piston rings are free.

16.3.19 Connecting rods are free.

16.3.20 Compression ratios are free.

16.3.21 Bore and stroke ratios are free.

16.3.22 Crank shafts are free, but for the fact that they must remain cast iron, unless the engine used was manufactured with a cast steel crank shaft. No billet steel crank shafts permitted.

16.3.23 Crank shafts may be knife edged.

16.3.24 Flexible engine mountings may be made solid;

16.3.25 Oil sumps, baffle sand oil pickups are free. Sumps are free in respect of volume and design.
16.3.26 Dry sump lubrication is permitted
16.3.27 The lightening of internal reciprocating components is permitted.
16.3.28 Cast iron main bearing caps may be replaced by steel bearing caps;
16.3.29 The removal of metal to balance internal engine reciprocating components is allowed.
16.3.30 The shot peening and nit riding of internal engine components is allowed.
16.3.31 A fly wheel shall be fitted but the design and specification is free. Aluminium fly wheels are permitted.
16.3.32 All fasteners (Nuts & Bolts) are free. The gudge on pin may be made floating.
16.3.33 The application of a heat deflecting coating is permitted to the exhaust manifold and exhaust pipes, between the bolt up face of the exhaust manifold and the tail pipe.
16.3.34 Oil flow restrictors in the cylinder head are permitted.
16.4 The following restrictions are imposed on modifications to modified engines:-
16.4.1 No forced induction such as turbo charging or super charging is allowed UNLESS permitted specifically by class regulations.
16.5 The following applies to the ancillaries of modified engines:-
16.5.1 Water pumps are free.
16.5.2 Alternators, power steering pumps and air conditioning pumps may be removed.

CR17 SPECIFICATIONS OF AN OPEN ENGINE

17.1 Any normal production type engine is allowed.
17.2 The following modifications may be made to OPEN engines:-
17.2.1 The material of which any engine component is manufactured may be changed.
17.2.2 The cylinder head may be substituted, even with that from another manufacturer or brand.
17.2.3 The cylinder head may be skimmed.
17.2.4 The cylinder head ports may be modified.
17.2.5 Porting and polishing of cylinder heads and manifolds is permitted.
17.2.6 Cam shafts are free.
17.2.7 Cam shaft timing adjustment is free.
17.2.8 The adjustment of valve timing by means of vernier gears or off set keys is permitted.
17.2.9 The cylinder head valve seats may be modified.
17.2.10 The inlet and exhaust valve head and stem diameters are free.
17.2.11 Valves are free.
17.2.12 The method of valve tappet clearance may be modified.
17.2.13 Solid valve lifters may be substituted for hydraulic valve lifters and vice versa
17.2.14 Roller rockers are permitted.
17.2.15 Tappet or valve covers are free.
17.2.16 Pulley sizes are free;
17.2.17 The cylinder block may be skimmed / decked.
17.2.18 Pistons may be pocketed for valve head clearance.
17.2.19 Pistons are free.
17.2.20 Piston rings are free.
17.2.21 Connecting rods are free.
17.2.22 Compression ratios are free.
17.2.23 Bore and stroke ratios are free.
17.2.24 Crank shafts are free.
17.2.25 Flexible engine mountings may be made solid;
17.2.26 Oil sumps, baffle sand oil pickups are free. Sumps are free in respect of volume and design.

17.2.27 Dry sump lubrication is permitted
17.2.28 The lightening of internal reciprocating components is permitted.
17.2.29 Cast iron main bearing caps may be replaced by steel bearing caps;
17.2.30 The removal of metal to balance internal engine reciprocating components is allowed.
17.2.31 The shot peening and nit riding of internal engine components is allowed.
17.2.32 A fly wheel shall be fitted but the design and specification is free. Aluminium fly wheels are permitted.
17.2.33 All fasteners (Nuts, Studs & Bolts) are free.
17.2.34 The use of heat deflective coatings is free.

17.3 Oil flow restrictors in the cylinder head are permitted.

17.4 The following restrictions are imposed on modifications to open engines:-

17.4.1 No forced induction such as turbo charging or super charging is allowed UNLESS permitted specifically by class regulations.

17.5 The following applies to the ancillaries of OPEN engines:-

17.5.1 Water pumps are free.
17.5.2 Alternators, power steering pumps and air conditioning pumps may be removed.

CR18 SPECIFICATIONS OF A ROTARY ENGINE.

18.1 Any twin rotor production type engine is allowed. The onus is on the entrant to prove the source and history of an engine.

18.2 Any modification that is permitted outside the engine (as stipulated in the open engine specifications) shall be permitted for rotary engines.

18.3 The following modifications may be made to rotary engines:-

18.3.1 Porting is allowed.
18.3.2 Peripheral port engines are permitted.
18.3.3 Porting may extend past the face of the rotor.
18.3.4 The water seal may be modified.
18.3.5 The water jackets may be filled.

18.4 **The following limitations apply:-**

18.4.1 No forced induction such as turbo charging or super charging is allowed on rotary engines.
18.4.2 The maximum internal diameter of the last 30 cm of the tail pipe shall be 90 mm. Only a single tail pipe is permitted.
18.4.3 No titanium rotors are permitted.
18.4.4 No aluminium housing plates are permitted.

CR19 GENERAL SAFETY

19.1 No ballast, other than weights fitted to comply with minimum weight regulations is allowed. Any such ballast shall be fitted as set out in CR 14 above.

19.2 All bonnet sand fenders shall be in place at the commencement of every race.

19.3 Competitors must be able to exit their vehicles and reach a point no less than 10 (ten) meters from the vehicle within 30 seconds.

CR20 CRASH HELMETS

20.1 Helmets must fit properly, be secured and be suitable for the purpose intended.

20.2 Helmets as deliberately constructed so as to absorb the energy of an impact. Therefore stands to reason that if, following such impact, the helmet are damaged (even if the damage is not readily apparent) it must be replaced.

20.3 Painting or the use of solvents on helmets can dame the mind is there for potentially dangerous. Helmets should be cleaned with a weak solution of soap and water.

20.4 Helmets should be as closely fitting as possible, consistent with comfort. No sideways movement should be possible, nor should the helmet be able to be pulled off the head in a forwards direction with the strap secured.

20.5 When not in use helmets should be stored in a cool, dry place away from sunlight, preferably in a helmet bag.

20.6 Visors must provide clear vision.

20.7 When there is doubt about a helmet's fitness, the chief scrutineer shall be empowered to impound the helmet for the duration of the event. Once the event is complete the helmet may be returned. Helmets not claimed within 7 days will be destroyed.

20.8 Full face helmets are compulsory.

CR21 COCK PIT AREAS / FIRE WALLS

21.1 All vehicles must have a properly constructed cock pit area. The material used to make the firewall, shaft tunnel and cock pit area shall not be combustible.

21.2 This cock pit area must house the seat and the controls of the vehicle. The cock pit area must separate the competitor from the engine compartment as well as from compartments where the fuel tank is housed.

21.3 The cock pit must have a floor covering the full area where the driver is seated and it must part of the original vehicle's body in the case of original road going vehicles or must be welded into place in space frame vehicles.

21.4 Properly constructed firewalls are a vital part of the mechanisms required to prevent the passage of flame into the driver's compartment. All fire walls, regardless of vehicle construction must be complete in all respects. This specifically requires the area behind the rear axle to be covered as well. Their construction must be such that they, the firewalls, would be fluid proof. This implies that fire wall will be constructed in such a fashion that all pipes, parts of chassis or any other item that need stop ass through the firewall, pass through with the smallest hole possible. All firewalls shall be constructed of metal hence materials such as rubber and fiberglass are not acceptable as firewalls.

21.5 Bonnets shall be so designed and fitted that they would prevent the passage of flame in to the cockpit. Hence no gaps are permitted between the bonnet and the dash board / window aperture area.

21.6 All pipes and wires that pass through the fire wall shall have rubber grommets.

21.7 The cockpit area on the passenger side of the driver may be enclosed. The following shall apply:

21.7.1 The material used shall be folded down ward from the horizontal plane on the driver's side.

21.7.2 The cover may slope downwards from the engine bay to the gear lever. At that point it shall be horizontal and shall be no higher than 50 cm above the original floor or chassis beams. The cover may slope upward to the parcel shelf / rear window / tail gate sill as the case may be from a point 50 cm behind the seat. For existing vehicles a 500 mm

Gap must exist. This gap must be wide enough to extricate the competitor on a back board.

21.7.3 The cover shall be removable.

21.7.4 The cover shall be able to support a weight of 100 kg.

CR22 ROLL CAGES AND SIDE IMPACT ("SISSY") BARS

22.1 The safety cage must be designed and constructed so that it substantially reduces body shell deformation and so reduces the risk of injury to occupant. The essential features of a safety cage are sound construction, design to suit the particular vehicle, ad equates mountings, and a close fit to the body shell. The side impact bars shall be placed so that they offer the most strength and protection in the event of a side impact.

22.2 The specifications for the roll cages and side impact bars can be found in the followings sections of the rule book:-

22.2.1 Saloons – in the section dealing with saloons.

22.2.2 Midgets – in the midget class regulations.

22.2.3 Ninja and Micro midgets – in the Ninja and Micro midget regulations

22.2.4 Sprint cars – in the sprint car regulations.

22.3 The roll cage pipes should be a straight as possible. Where the construction of the vehicles necessitates bowed or curved pipes these shall be reinforced by triangulation.

22.4 The safety cage shall be padded in the immediate vicinity of the competitor's body with a fire retardant foam material.

22.5 The cage shall be fitted with a base plate, welded, or bolted on to the floor, sill, or wheel arch of the vehicle if the original body of a standard vehicle is utilized. The cage of a purpose built chassis shall for man integral part of the chassis itself and shall accordingly be welded directly onto the chassis legs.

22.6 No holes or slots or any type of measure intended to reduce the weight of the pipe work utilized is permitted.

22.7 None of the legs of the roll cage may rely on another element of the roll cage for support.

CR23 SAFETY BELTS

23.1 The seat belts and the installation must comply with the MSA specifications.

23.2 Arm straps are optional, but must be of the quick release type.

23.3 Safety belts must be properly stitched and no holes may be drilled into the safety belts.

23.4 Only approved 4 and 5 point harnesses may be used and these must be properly mounted on welded metal mounts to the chassis and roll cage..

CR24 SEATS

24.1 It is recommended that FIA approved competition seats be fitted.

24.2 Only racing type seats are allowed. It follows that no conventional passenger vehicle seats may be used in their original or modified state.

24.3 Non-FIA approved seats shall be reinforced by clearly visible aluminium or metal backing fitted directly behind these at if it does not mount flush against a properly constructed panel. Such backing shall be properly shaped in accordance with the seat of the vehicle and shall have no sharp edges and for man integral part of the mounting of the seat itself. Fibre glass seats shall be covered. The minimum thickness of materials for non FIA seats is as follows:

24.3.1 Fibre glass / composite materials – 8 mm

24.3.2 Aluminium – 2.5 mm

24.4 Seats must be bolted with tear plates as set out for safety belts above as follows:-

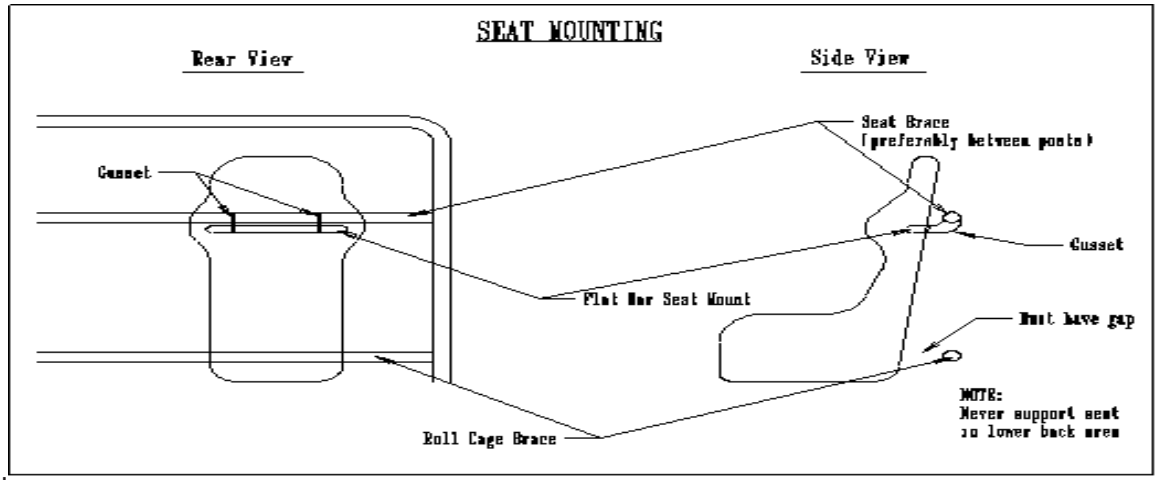
24.4.1 When original road going vehicles are used – to the floor pan of the vehicle – provided that the complete floor plan is still of sound construction and free of rust;

24.4.2 In all other cases – to specifically constructed seat mounting legs that are in turn mounted to the chassis of the vehicle.

24.5 No cracked or broken seats are permitted.

24.6 The driver must sit to one side of the centre line in all saloon vehicle classes.

24.7 A properly braced and triangulated cradle shall be installed if a seat needs to be raised. The triangulation shall be on both length ways sides (to protect against a forward failure) and at least one of the other sides. The cradle shall in turn be fitted as if it were a seat



CR 25 CLOTHING.

25.1 Properly accredited single layer fire retardant race suits are mandatory. Multi layers suits are highly recommended. Please refer to the MSA circular in respect of labelling that would be required on all locally produced race suits. It is printed at the back of this book for the convenience of officials and competitors. Please note this regulation does not require new overall strobe purchased and should rather be seen as a measure to protect the competitor against unscrupulous purveyors of inferior race wear.

25.2 Approved fire retardant gloves are compulsory.

25.3 The use of fire retardant socks and balaclavas is highly recommended for all competitors. **Competitors are ADVISED that they will be permitted to race without these socks and balaclavas but in doing so they knowingly assume the risks associated with being involved in a fiery incident without these safety garments.**

25.4 Ideally fire resistant clothing should carry the FIA'S approval label.

25.5 Clothing must be in good condition and must fit properly.

CR26 DRIVER CONTROLS

26.1 All vehicles shall be operated by means of a steering wheel, which shall not be of wood.

26.2 The steering wheel may be removable. Generally competitors should be aware that a removable steering wheel aids the extraction of the driver in the event of medical intervention.

26.3 The steering column may be repositioned to suit the driver. He shall however remain seated to one or other side of the centre line of a saloon car.

26.4 The steering column may be replaced with a purpose made column. No straight through column are permitted. There must at least be one joint in the column, preferably at an angle to the main column.

26.5 The brakes, accelerator, and clutch shall be operated by means of suitably sized and mounted foot pedals. **Pedal boxes are free.**

26.6 MSA may upon application allow certain specified modifications to be made in order to accommodate the needs of a handicapped competitor. Such application is to be fully motivated in writing. The MSA OR C shall in its deliberations consider the rights of the handicapped as well as those of the organizers and other competitors.

26.7 **All vehicles must be fitted with dual throttle return springs.**

26.8 It is recommended that clutch less vehicles shall have a dual cable system attached to the throttle. Such a system must close the throttle without relying on a spring if the driver lifts the pedal.

26.9 No in car adjustments, other than brake bias, permitted.

26.10 Telemetry systems are not permitted. DATA LOGGING is defined to be the recording of engine information such as temperature and pressure in electronic format capable of being accessed by computer. Displays indicating such information are permitted.

CR27 KILL SWITCHES

27.1 An effective kill switch system must be fitted. The switch must:

27.1.1 Be clearly marked in red and externally with a regulatory blue triangle with a red flash therein.

27.1.2 Be within the driver's reach, when seated and strapped in.

27.1.3 Be operational from outside the vehicle for use by marshals. This can be achieved by activating the main switch by way of a pull cable;

27.1.4 Break the neutral or negative circuit from the battery to the engine and chassis

27.1.5 Break the ignition and electric fuel pump circuits.

CR28 FLUID RETENTION

28.1 All vehicles shall have their sump, gear box and differential / axle plugs wired, and all the oil filters clamped or strapped.

28.2 A radiator water catch tank of a minimum capacity of 2Litres shall be fitted to the cooling system.

28.3 An oil catch tank, with a minimum capacity of 2litres, capable of accepting surplus oil and fumes from the engine shall be fitted. The catch tank shall be connected to each breather outlet by means of a flexible pipe or similar conveyance, designed to feed the oil or fumes to the tank. The catch tank is to be emptied between races.

28.4 A drip tray shall be installed beneath the engine. The tray shall be securely mounted and shall have a lip all round.

CR29 PIPE WORK

29.1 All joints and seams in the construction of the vehicle are to be properly mitred and shall be welded.....

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CR30 PROP SHAFT / DRIVESHAFT / RUNNING GEAR PROTECTION

30.1 Drivers must be protected from open running prop shafts by two steel bands, with a minimum width of 50 mm. The bands shall be at least five mm thick and shall be bolted or welded to the chassis. The object of these bands is to prevent a broken shaft from rising and coming into the cock pit area. The one band shall be 150 mm behind the front yoke.

30.2 All vehicles shall have a collar / hoop that would prevent the front end of the running gear (prop shaft or torque tube) to lodge in the track should it break while the vehicle is in motion. To be effective this hoop or collar should be approximately 25% along the distance of the shaft as measured from the front. It is not necessary to install this hoop if

the construction of the vehicle already fulfils this function by having the prop shaft run above the chassis.

CR31 BATTERIES

31.1 All batteries must be securely fixed in to the vehicle in a battery box secured by bolts with a diameter of at least 8 mm and reinforcing plate.

CR32 EXHAUSTS AND SILENCERS

32.1 All vehicles and SR's shall comply with GCR 245 and the Environmental code of MSA

32.2 A suitable metal plate mounted away from the exhaust in order that it acts, as an effective heat shield shall cover the pipe inside the driver's compartment.

CR33 FUEL PIPES AND FUEL TANKS

33.1 It is highly recommended that properly designed and manufactured racing fuel tanks, especially bag tanks are utilized. The use of fuel tank foam is also highly recommended. Metal fuel tanks shall be made of metal at least 1 mm thick. Boating tanks are permitted, provided they comply with the balance of this regulation.

33.2 A fuel tank breather, which shall vent externally, must be fitted to all fuel tanks. A non - return valve shall be fitted to the breather. The non – return valve must not be airtight.

33.3 The fuel tank shall have a non – vented cap. The cap may not be mounted into the body work of the vehicle. Where a conventional road going vehicle or space frame vehicle is used the cap shall be fitted directly to the tank and be housed within the boot space. In all other cases, a rubber hose from the tank to the cap will be allowed. The fuel filler hose will terminate into the cap fitting which shall be flush mounted to the upper horizontal portion of the body shell or panelling as the case maybe.

33.4 Fuel tanks must be mounted in a separate compartment to the driver. A complete, sealed firewall must be constructed to separate the competitor from the fuel tank and the fuel pumps. Where conventional road going vehicles are used the fuel tank will mount inside the boot area. In hatch type vehicles the fuel tank will be placed in the spare wheel well. In these cases a firewall will be constructed from the driver's side of the tank to the tail gate sill.

33.5 Fuel tanks must be securely mounted to the boot floor or the chassis of the vehicle with bolts or metal straps. Tanks may not be welded into place.

33.6 The fuel tank shall preferably be mounted on the driver's side of the rear axle. If the tank is fitted behind the rear axle and below the boot floor a hoop shall be welded into place between the chassis rails to protect the tank. The material used shall be pipe with an outside diameter of 38 mm and a wall thickness of 2mm. The hoop will be braced.

33.7 There may only be a single fuel tank which shall be the only source of fuel to the carburettors or fuel injection system. The fuel line may be branched to allow dual or spare pumps to be fitted

33.8 The fuel pumps shall be securely mounted.

33.9 Fuel pumps may not be fitted in the cockpit. All fuel lines in the cock pit must be of copper or steel tubing.

33.10 Inlets and outlets into and out of the tank shall be securely connected to the fuel lines, with special care being taken if the out let is below the tank.

CR34 DRY SUMP TANKS AND OIL LINES

34.1 Where dry sump lubrication is permitted the dry sump tank may be fitted inside the cock pit of saloon cars.

34.2 All oil lines shall be properly shielded.

34.3 The competitor must be shielded from the tank / oil cooler.

34.4 **All hoses to be hydraulic hoses.**

CR35 RESERVED

NOTICE
Competitors and Scrutineers are warned that the practice of customizing hand held extinguishers for this purpose is in correct and dangerous. These types of extinguishers have pick up pipes that collect the extinguishing material from the bottom of the cylinder when in an upright position. They do not function in an upside down position for example. Suitably designed pressurized canisters are available from specialist Motorsport shop sand fire safety suppliers.

PLEASE NOTE
THIS SECTION ONLY APPLIES TO SALOON VEHICLES. THE REGULATIONS IN RESPECT OF THE TOPICS ADDRESSED IN THESE REGULATIONS ARE FOUND IN THE INDIVIDUAL REGULATIONS OF THE VARIOUS OPEN WHEEL CLASSES – PLEASE CONSULT THOSE IF YOU RACE AN OPEN WHEEL CLASS.

CR36 VEHICLE TYPES DEFINED

36.1 These regulations envisage 3 specific types of vehicle being:-

36.1.1 The original road going vehicle that has had a roll cage fitted and is now used as a race car.

36.1.2 The conventional road going vehicle that has been extensively modified and has had changed made to the suspension pick up points. These are termed semi space frames.

36.2 The fully fledged purpose built racing frame.

36.3 These three types have been separated in these rules as certain classes are limited to original road going vehicles.

36.4 ORIGINAL ROAD GOING VEHICLES

36.4.1 These are vehicles that were designed and built for road going use by commercially recognized motor manufacturers.

36.4.2 These vehicles are converted to oval racing vehicles.

36.4.3 They do not include the semi – space frame or space frame vehicles.

36.4.4 This use of this type of vehicle is seen as a limitation. There for whenever this class is specified semi space frames and space frames are not permitted.

36.5 **SEMI SPACE FRAME VEHICLES**

36.5.1 These include vehicles are converted from the original road going vehicles.

36.5.2 Major structural changes have been made and the roll cage and pipe work inserted into the vehicle have effectively mounted the drive train and the suspension.

36.6 **SPACE FRAME VEHICLES**

36.6.1 These are purpose built tubular steel chassis.

36.6.2 Where ever the class rules permit space frames original road going cars and semi space frames are also permitted, with the same modifications as those permitted for space frames.

CR37 GENERAL RULES REGARDING THE EXTERNAL BODY SHELL–APPLICABLE TO ALL SALOONS

37.1 Roadster type bodies may be used provided they were built with a top by the manufacturer. A soft top must be replaced by a replica fibre glass top.

37.2 Measurements of the body shell shall be made a cross the driver's seat in respect of the width of the vehicle and in the centre of the vehicle in respect of the length of the vehicle. Such measurements shall exclude wheel arches and flares.

37.3 The maximum thickness of the front and grille panels of vehicles shall be:-

37.3.1 Metal-1.2-mm

37.3.2 Aluminium–1.6mm

37.3.3 Fibreglass–4-mm.

37.4 Should the height of the door impair access it shall not be cut away but shall have a hinge arrangement whereby it folds, at or near the top sissy bar. Doors may be made fully removable, provided they are securely fitted during races. The securing pins shall be removable from the outside.

37.5 The construction, safety, and finish of the original steel body or replacement panels to be to the satisfaction of the Scrutineers. No sharp edges are permitted. Please also see the CR 21 regarding sharp edges inside the cockpit.

37.6 The front panels must retain the original grille and light apertures, provided that both of these may be blanked off. Ducts to supply cool air to the carburettor / fuel injection system or the brakes may be installed into these panels, always subject to the class regulations that control the intake of air into the engines

37.7 The rear boot panels (meaning the portion between the tail lamps) shall be retained.

37.8 Boot lids and tail gates shall in place. They must be adequately secured in the closed position with fasteners

37.9 All panels, irrespective of whether or not they are replacement panels shall be securely fixed and no loose or flapping panels shall be permitted when a vehicle starts a race. The driver shall ensure that steps are taken between races to secure body panels that have become loose or damaged.

37.10 Bonnets and boot lids shall be secured by means of either four pins or two pins and two corner plates. The area around the pin must be reinforced in order to avoid tearing. Operational doors must be fitted with working latches to prevent them opening during races. The latches must be operation al from outside the vehicle. Latches must be fitted so that they do not present a hazard to other competitors, especially on the sides.

37.11 The roof shall be complete. The roof must be the original shape of body being used.

37.12 Wheel arches may be modified to accommodate wheels. Wheel arches may not be reinforced with steel pipes or any other material. The wheel arches may be reinforced using the same material as the rest of the wheel arch. The object of the permitted reinforcement is to protect the wheel area and any reinforcement that is designed to be used as a weapon is prohibited.

37.13 No fastener situated on the front, rear or side panels of the vehicle shall protrude more than 30 mm beyond the body work

CR38 CONSTRUCTION RULES APPLICABLE TO ORIGINAL ROAD GOING VEHICLES

38.1 Further restrictions on replacement, repair, and modifications allowed are found in the class regulations.

38.2 Bodies may not be lengthened, shortened, or narrowed;

38.3 The silhouette as seen from the front shall remain symmetrical, with no off set being permitted.
The silhouette as seen from the sides, the front and the back shall remain the same as the original vehicle, with latitude being allowed for repaired accident damage only.

38.4 Vehicles of this type may not be re bodied. The process of re bodying requires the entire outer shell of the vehicle to be separated from the monocoque. Once this has been done to a vehicle it shall be considered a semi space frame.

38.5 All interior trim must be removed

38.6 The roof may not be lowered and any hole caused by the fitment of for instance a sunroof in the donor vehicle shall be closed.

38.7 The front valance and radiator carrier may be mounted as per space frame regulations.

38.8 The internal fender walls and wheel houses shall be retained front and rear. The shaft tunnel shall be retained. The boot floor shall be retained.

38.9 The engine bay / cock pit bulkhead / firewall shall be retained but may be altered to accept another gearbox should class regulations permit an alternative gear box. The material utilized shall be sheet metal with a minimum thickness of 1 mm mounted on at least a 15 x 15 x 2 mm frame.

38.10 The completer of pillar structure of the vehicle shall be retained.

38.11 The vehicle may be finished by the fitment of either the original plastic bumper or a fibre glass replica of the bumper.

38.12 The inner portion of all doors may be removed. In all cases, care must be taken to avoid edges that could cause injury. Doors may be replaced with sheet metal or fibre glass replicas. In such cases, they shall retain the same shape and curve as the original door. These replica panels may be made of a one piece construction. These replacements shall be properly mounted into place. The use of shape less one piece side sections, typically flat sheets, is not allowed.

38.13 Rear doors must be adequately secured in the closed position with fasteners.

38.14 The metal of the body may be replaced with metal or aluminium sheeting not exceeding 1.2 mm for metal and1.6 mm for aluminium. Where fibre glass is used to replace sections of the external body shell it shall comply with the regulations for the replica bodies described below. In both cases, the repair or replacement shall still resemble the replaced part. In both cases the contours of the body shall be retained.

38.15 Only the bonnet, the front fenders, the 2/4 doors and the tail gate / boot lid may be replaced with exact replica parts. The “B” and “C” pillars may be repaired with fibre glass replicas. Once all the pillars have been replaced with fibre glass the car will be classified as a semi space frame.

38.16 The roll cage may not extend beyond the cockpit.

38.17 Under trays may NOT be fitted.

38.18 All suspension parts (excluding shock absorbers) shall remain standard, albeit that they may be modified in accordance with class regulations. There for a vehicle with arose jointed, A-arm front suspension shall be classed as a semi space frame if it still has the original body.

38.19 All silhouettes, frames and roll cages may not be off set.

CR39 CONSTRUCTION RULES APPLICABLE TO SEMI SPACE FRAME VEHICLES

39.1 Further restrictions on replacement, repair, and modifications allowed are found in the class regulations.

39.2 Bodies may not be lengthened, shortened, or narrowed.

39.3 The silhouette as seen from the front shall remain symmetrical, with no off set being permitted.
The silhouette as seen from the sides, the front and the back shall remain similar to the original vehicle, with latitude being allowed for repaired accident damage.

39.4 All interior trim must be removed.

39.5 Vehicles of this type may be re bodied. The process of re-bodying requires the entire outer shell of the vehicle to be separated from the monocoque.

39.6 The roof may not be lowered and any hole caused by the fitment off or instance a sunroof in the donor vehicle shall be closed.

39.7 The front valance and radiator carrier may be mounted as per space frame regulations.

39.8 The internal fender walls and wheel houses may be removed.

39.9 The vehicle may be finished by the fitment of either the original plastic bumper or a fibre glass replica of the bumper.

39.10 The inner portion of all doors may be removed. In all cases, care must be taken to avoid edges that could cause injury.

39.11 The use of shapeless one – piece side sections, typically flat sheet metal, to replace doors and fenders is not allowed.

39.12 The body may be removed in its totality and replaced with a replica body shell.

39.13 The metal of the body may be replaced with metal or aluminium sheeting not exceeding 1.2 mm for metal and 1.6 mm for aluminium. Where fibre glass is used to replace sections of the external body shell it shall comply with the regulations for the replica bodies described below. In both cases, the repair or replacement shall still resemble the replaced part. In both cases the contours of the body shall be retained. An aluminium sheet, the size of the door below the window aperture, must be fitted. An aluminium sheet must be fitted to the whole roll cage roof area as well.

39.14 The removal of the floor pan is permitted, provided that are placement pan is made for the driver's area and the seat and roll cage posts are properly mounted as per the regulations for space frames.

39.15 Under trays may be fitted if they do not exceed the under floor area of the engine bay.

39.16 The tunnel and part of the fire wall may be modified, using metal with a thickness of 2 mm, when converting front wheel drive to rear wheel drive.

39.17 The original floor pan, the interior floor area of the boot and the fire wall, may be strengthened for the purposes of rigidity. The material used for this purpose shall be a square tube not exceeding 15 mm x 15 mm x 2 mm.

39.18 All silhouettes, frames and roll cages may not be off set.

CR40 SPACE FRAME VEHICLES

40.1 The body may consist of a single continuous shell or loose panels. It is recommended that the driver's door be a separate item.

40.2 The silhouette, frame and roll cage as seen from the front shall remain symmetrical, with no offset being permitted.

40.3 The vehicle may be finished by the fitment of either the original plastic bumper or a fibre glass replica of the bumper.

40.4 Vehicles shall in essence retain the same shape and form as the vehicle on which it is modelled and must still be easily recognizable as being such a vehicle.

40.5 Bodies are to be secured to the chassis by means of support plates that shall not be more than

2 mm thick. The length and width of these plates are free. These plates shall mount to support pipes or the chassis.

40.6 Continuous mounting plates, running the full length of the joint areas are not permitted. It follows that the mountings shall be designed to secure the body work in a safe manner without creating reinforcements.

40.7 No ribbing or reinforcing is allowed in any fibre glass body panels or sections, except the boot lid, roof, and bonnet.

40.8 Under trays may be fitted if they do not exceed the under floor area of the engine bay.

40.9 There shall be a properly reinforced floor pan for the driver's area of the cockpit.

CR41 SPACE FRAME CHASSIS CONSTRUCTION

41.1 The material used to build the chassis and frame shall be suitable steel tubing.

41.2 The chassis shall incorporate the following:-

41.2.1 A roll cage as set out in CR 42 below

41.2.2 Properly triangulated mounting points for the suspension, engine and drive train; and

41.2.3 Structural soundness that will with stand the rigors of racing.

41.3 The minimum specifications for the materials used to the chassis and frame of Saloon classes are:-

41.3.1 Round Tubing: Minimum 38 x 2 mm

41.3.2 Square Tubing: Minimum 38 x 38 x 2 mm

41.3.3 Roll Cage, Sissy Bars, and all other pipe work on the frame: As per CR 42 below.

41.3.4 MSA ORC may, on terms and conditions it deems appropriate, exempt registered chassis builders from the need to have every vehicle it, the chassis builder, produces inspected.

41.3.5 All silhouettes, frames and roll cages may not be off set.

CR42 ROLL CAGES

42.1 The minimum requirements for roll cages in all classes are:

42.1.1 No roll cage may be off set.

42.1.2 The cage shall have four down (vertical) pipes or legs, two of which must be in front of the driver. The other two shall be behind the driver's seat. Four horizontal pipes fitted at the top of the down pipes shall join the four down pipes to each other.

42.1.3 Two cross braces must be fitted, on in front of the driver, above the steering column, and one behind the driver, supporting the back rest of the seat. This brace shall be just below the shoulder of the driver when seated and shall support the seat belt / harness so that the belts would pull the driver down in to the seat. Should the seat have belt slots the bar shall be mounted at the exit point of the slots.

42.1.4 The roll cage must be reinforced as follows:-

42.1.4.1 Two rear ward facing, down wards loping pipes that mount from the top of the cage to the floor, wheel arch or chassis shall be fitted; and

42.2 A cross pipe, that triangulates (from left to right or right to left, top to bottom as viewed from behind the vehicle) either the roll cage down posts or the rear ward facing down ward sloping pipes, shall be fitted. This pipe is in black on the attached drawings.

42.3 All joints and seams in the construction roll cage are to be properly mitred (see diagram in regulation CR 29 above) and shall be welded as follows:-

42.3.1 When original, conventional factory built road or semi-space framed vehicles are used

-100% in all cases are able areas provided that a gusset is fitted where joints cannot be fully welded; and

42.3.2 When a purpose built chassis is utilized - 100%.

42.4 The Roll cage itself as described in regulation must be constructed of the following materials:

42.4.1 Cold rolled tubing with a minimum diameter of 38 mm and a minimum wall thickness of 2 mm.

42.4.2 The additional obligatory bracing, as described in regulation CR 42.1.4 above as well further specified bracing shall be of:-

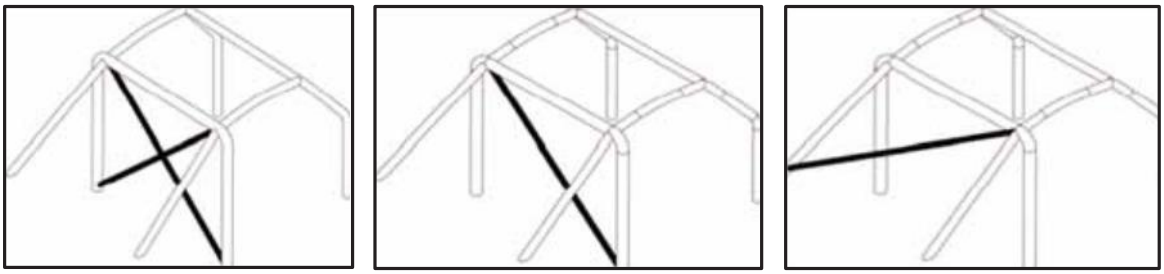
42.4.2.1 Pipe with a minimum diameter of 33 mm and a minimum wall thickness of 2 mm; or

42.4.2.2 Square tubing with a minimum width of 33 mm and a minimum wall t thickness of 2 mm.

42.5 All piping between the various mounting points and joints shall be completely straight, except for the front down pipes or legs of the roll cage which may be shaped in accordance with the profile of the front window, as seen in side elevation. In such case they shall be straight between the floor and the cross brace above the steering wheel and between that brace and the upper horizontals.

42.6 Additional cross pipe bracing may be added to the cage.

42.7 The piping of the cage, constructed as an integral part of a purpose built chassis, maybe shaped to provide a close fit to the body shell. Such cages shall have all the elements of the above chassis as well as additional, triangulated, bracing to reinforce the cage. This bracing is especially required where the cage may have lost some of the strength due to the bends made to obtain a closer fit.



The above sketches are courtesy of the FIA web site and depict the acceptable style of cross bracing (the black pipe) for roll cages. Obviously these drawings assume proper base plates and welding.

CR43 SIDE IMPACT PROTECTION ("SISSY") BARS

43.1 Two sissy bars, fitted horizontally, on the inside of the two front doors, must be fitted between the two down pipes or legs of roll cage and affixed to the roll cage.

43.2 The sissy bars must be a minimum of 50 mm apart. A minimum of one vertical support pipe, in the centre of the sissy bar is compulsory. The sissy bar may not protrude past the roll cage down bars. The sissy bar shall preferably follow the contour of the door, especially on the driver's side.

43.3 Sissy bars shall be fitted in such a manner that the competitor's hips and knees are completely protected when he is strapped in to his seat. In order to achieve this the top horizontal bar must be in the middle of the door, as measured from the floor sill to the bottom of the window aperture. The sissy bars must be constructed so that the internal / external bumper of a competing vehicle would collide with the sissy bar in the even to fat T-bone type collision.

43.4 The sissy bar shall have two vertical supports, welded or bolted to the sill or the chassis, spaced so that they divide the area between the back of the seat and the front lower corner of the driver's side door in to three equal areas.

43.5 The sissy bars may be replaced by across arrangement, securely welded together at the cross over point. The cross shall be installed in such a fashion that the top ends are in line with the top of the door panel. The bottom ends shall be at least 75 mm above the sill height. The cross point shall be gusseted with 2 mm plate for a distance of 100 mm from the cross over point.

CR44 GLASS – WINDOWS AND LIGHTS

44.1 All windows, except the front windscreen, shall be removed for vehicles competing on tar.

44.2 Windscreens are not permitted on dirt. At least one brace running from the top to the bottom of the window aperture, with a minimum diameter of 20 mm (round pipe), 25 mm X 3 mm Flat bar.

44.3 If window or windscreens are fitted, only laminated windscreens will be permitted with additional duct tape or metal brackets securing the four corners being compulsory. No cracked windscreens will be allowed if visibility is in anyway affected.

44.4 All glass and /or plastic indicators or lights shall be removed from the body of the vehicles that participate in racing where contact is permitted. They may be retained for non-contact racing but shall be properly secured.

44.5 The rear side windows may be replaced with side-panels of clear Lexan or poly carbonate. The panels must however remain transparent, without sign writing or advertising, other than the competitor's surname and a regional or club logo. The number may not be fitted here.

CR45 COOLING SYSTEMS

45.1 Radiators shall be mounted within the engine compartment of vehicles participating in tar events.

45.2 The radiators of vehicles participating in dirt events may be moved within the engine bay or may be mounted elsewhere provided that:-

45.2.1 The fitment of the radiator does not obscure the driver's rear ward or sideways vision;

45.2.2 The fitment of the radiator would not hamper the extraction of the driver from the vehicle in the event of an accident and shall be screened as set out in CR-A 32.2 above;

45.2.3 All piping to and from the radiator, other than the joints and the over flow pipes shall be of steel. The pipes must be mounted on the floor between the fire wall and the radiator. All joints are to be enclosed by a rubber sock and all hoses are to be double clamped or cladded.

45.2.4 The radiator is covered on three sides with the open side being the side furthest from the competitor.

45.2.5 Steps are taken to ensure that the water and steam associated with ruptured pipes or radiators vent down wards and away from the competitor.

45.3 No on board radiator spraying, for cooling purposes, is permitted.

CR46 TRACK / WHEELBASE / ENGINE PLACEMENT

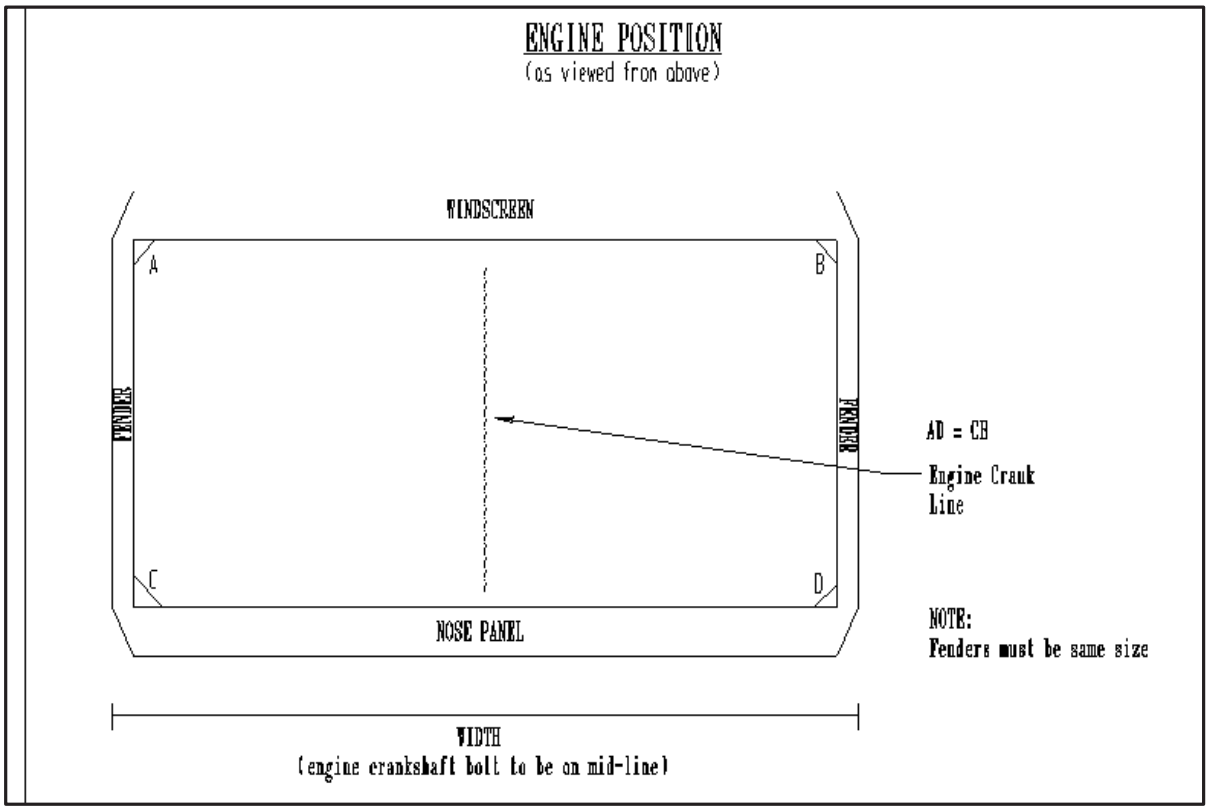
46.1 Track and wheel base are free within the confines of what is allowed in terms of suspension regulations and restrictive class regulations. However all four wheels of the car must fit within the body of the car, which in turn must comply with the maximum dimensions of the vehicles asset out in the appendices for the three classes. No part of the vehicles may be outside the total width and length as published. Competitors are urged to take special care of the outside front wheel of their car when checking for compliance with this rule.

46.2 Engines may be tilted (by up to 20□ from standard) provided all other position regulations are complied with.

46.3 Due to the difficulties in obtaining a true measuring point the placement of the engine will be measured from the centre line of the wheel base. Each of the class regulations will specify the forward distance between the centre lines of the wheel base to the lower front edge of the bell housing. The calculation would be made as follows.

EXAMPLE CALCULATION (all measurements in cm)	
Wheel base of particular vehicle (average of two sides).....	.....238.00
Therefore 50% of wheel base.....	.....119.00
Add forward distance per individual class rules.....	.....78.00
Subtotal.....	.....197.00
Deduct tolerance.....	.....-5.00
Minimum distance from axle centre line to the lower front edge of the bell housing.....	.....**192.00**

46.4 In all front engine, rear wheel drive applications the centre of the crank shaft shall be on the centre line of rear wheel drive vehicles. A tolerance of 50 mm is permitted. See sketch below for means of measurement.



Wheelbase is the horizontal distance between the centre of the front wheel, and the centre of the rear wheel.

CR47 WINDOW NETS

47.1 Window nets are optional. If fitted they shall comply with the following regulation.

47.2 Window nets shall be made of either:-

47.2.1 Non inflammable webbing with a minimum width of 25 mm and a maximum width of

35 mm that has been properly woven and stitched together in a block pattern, with gaps of no more than 75 mm; or47.2.2 Non-inflammable cord with a diameter of 2 mm that has been properly knotted together with gaps of no more than 60 mm. The woven cord shall be stitched into webbing or other suitable material and affixed to the vehicles via properly reinforced eyelets.

47.3 Window nets shall cover:

47.3.1 The full window area from top to bottom

47.3.2 From the edge of the seat at the driver's shoulder to his elbow, measured with the driver seated at the controls with his hands on the steering wheel.

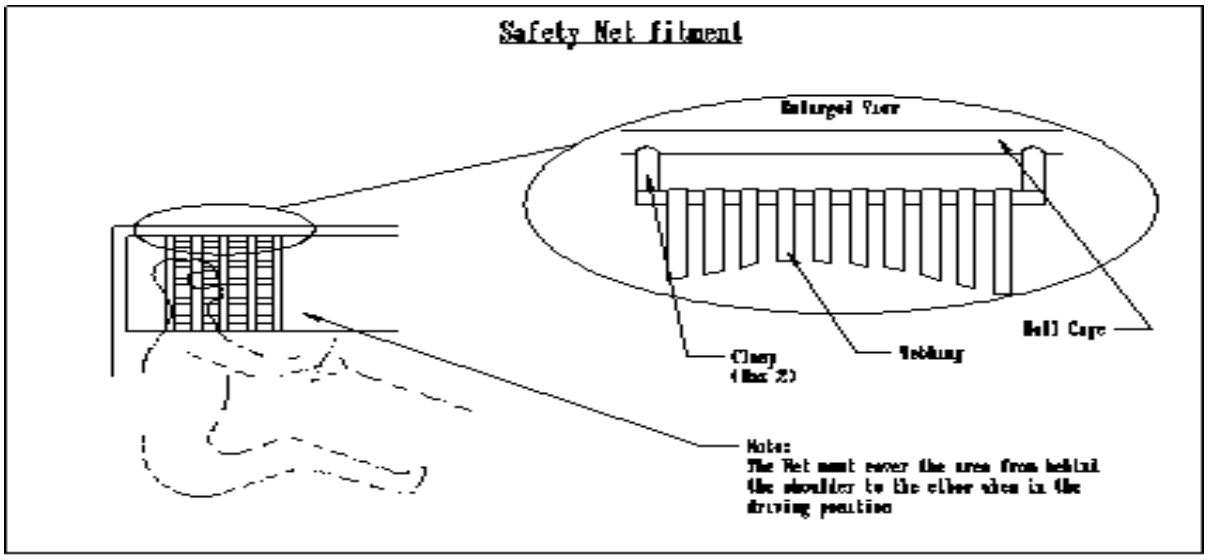
47.4 The net shall

47.4.1 Be firmly mounted into place using suitable using luggage clips;

47.4.2 Mount to the roll cage and sissy bar in the window space–top and bottom

47.4.3 Not be affixed to the release mechanism by parcel elastic, ropes or cableties.

47.5 When a safety net is installed, it must still be possible to open / remove the door or remove the safety net in an emergency. Safety nets are not compulsory.



CR48 BRAKE LIGHT

48.1 The brake light shall be operational at all times.

48.2 One rearward facing red brake light must be fitted in the rear window space. The lens of the light shall be at least 50 mm in length or diameter and must be intact. The lights may be replaced by a non-flashing LED of at least 200 mm in length.

48.3 The brake lights / tail amps must operate by a standard pedal operated switch. No other switches or modifications are allowed. The bulbs must be effective.

48.4 As a general rule brake lights may not be fitted in the body work of the vehicle.

48.5 Care must be taken during the installation of the lights in order that flickering and malfunction may be minimized.

CR49 WHEEL AND BODY PROTECTOR

49.1 A wheel and body protector, fitted between the front and the rear wheel sat sill height, maybe fitted.

49.2 The wheel and body protector shall be straight. In other word sit may only curve in wards once a teach end when it mounts.

49.3 The thickness of material used must not exceed 2 mm. The protector may not protrude more than 30 mm beyond the wheel and must **be flush** with the body work.

49.4 All leading and trailing edges to be smooth and angled back to the sill unless incorporated into the wheel arch.

49.5 No straight round pipe sections are permitted, as these must be rounded back to the chassis / mounting point.

CR50 RESERVED

CR51 RADIATOR PROTECTION

51.1 All vehicles shall be allowed a radiator protection bar that may be fitted either above or below the bumper if the radiator is fitted in the front of the vehicle, ahead of the engine.

51.2 The bar shall have no more than 4 mounting points.

51.3 The bar may in addition form an integral part of the radiator cradle and / or the bumper system.

51.4 The bar and all mounting pipes shall be made of round pipe with a maximum size of 38 x 2 mm.

CR52 GENERAL BUMPER REGULATIONS

52.1 Bumpers are considered to be an integral part of the structure of the vehicle and are compulsory. Please refer to the attached sketches.

52.2 The horizontal element of the bumper shall be 30 cm above ground level for tar and 35 cm above ground level for dirt. In each case a 2.5 cm tolerance either way will be allowed.

52.3 The bumper shall have a single horizontal pipe. Unless otherwise stated in the class regulations the bumper shall be mounted with two pipes that mount on to or form part of the vehicle's chassis. The ends of the horizontal pipe shall be rounded off and shall be mounted back onto the same chassis element.

52.4 The design of the bumper support between the roll cage and the wheel hubs (as referred to above) is free. The bumper may not be connected to the roll cage uprights unless the support structure complies with the triangulation requirement below. Bumpers may be connected to the four roll cage up rights. The bumper itself may not mount to the horizontal roll cage pipes on the driver’s side of the vehicle. It is against ressed that the bumper mounting must be braced where it mounts onto the roll cage.

52.5 The bumper mounting pipes must be triangulated. The triangulation for the front of the vehicle shall be to the horizontal brace of the roll cage. In the rear of the vehicle the triangulation shall be to brace bar fitted between the two mounting pipes. The triangulation shall connect to two points at least 150 mm away from the 90° joint to the brace pipes. The triangulation shall be between the roll cage down pipes and the wheel hubs. The support may be braced vertically in space frames and semi space frames.

52.6 The path of the bumper mounting pipe may be broken by the suspension turrets.

52.7 All bumpers shall be constructed in accordance with the specifications for each class.

52.8 The bumper mounting pipes may not exceed the thickness of the roll cage pipes they mount onto.

52.9 The scrutineer, technical consultant and the Race Controller may, as a body, instruct the removal of any bumper arrangement that is regarded as being beyond the spirit of the regulations.

52.10 No dual bumper systems are allowed. In other words – If contact is permitted in the class to be raced an election must be made between fitting an internal bumper or an external bumper, but not both!

52.11 Bumpers must have rounded ends. No sharp points or edges are allowed.

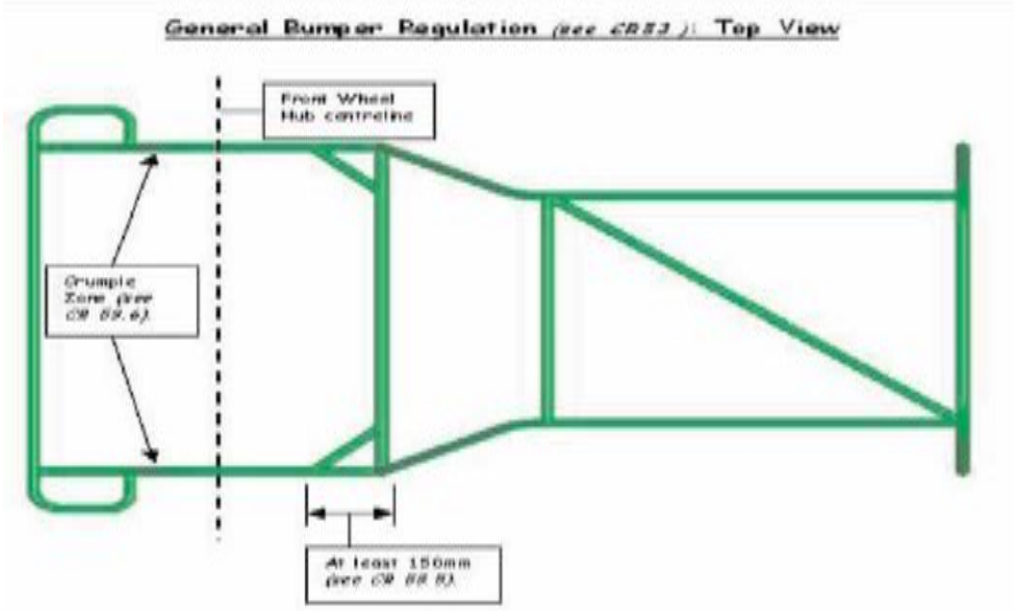
52.12 All elements of the chassis shall end 100 mm inside the body work, front and back. Unless otherwise stated only the bumpers and the wheel and body protectors may be hard up against the inside of the body. The chassis may not be used as or be part of a bumper system.

52.13 No bumpers may be reinforced with gussets. The main bumper pipe may have a body mounting plate attached to it. No additional reinforcing shall be permitted.

52.14 No standard, original equipment steel bumpers are allowed.

52.15 The only material used for the construction of the bumpers, their support pipes and mounting points **SHALL** be round tube with a maximum OD of 38 mm having a maximum wall thickness of 2 mm.

52.16 Bumpers must be fitted and fashioned in such way that it is possible for a scrutineer to check compliance with these regulations. Similarly all cosmetic covers that are



constructed over any portion of the bumpers or their support pipes shall be capable of removal for the purposes of scrutiny.

52.17 Bumpers may not be connected extended to form wheel arch protections as these are expressly prohibited. As wheel arch protection pipes are not permitted it follows that bumpers cannot mount to them.

52.18 All vehicles are allowed to fit plastic or fibre glass bumper covers to improve the aesthetic appearance of the vehicle, subject to the following:-

52.18.1 A single original non-metal or replica bumper cover is permitted front and back.

52.18.2 Replica covers from another vehicle may also be used.

52.18.3 The cover shall be the original manufactured plastic bumper cover or it shall be a replica made of fiberglass.

52.18.4 The cover shall not be reinforced and shall not be more than 4 – mm thick and shall be removable.

52.18.5 The cover must be properly secured to the internal bumper of space frames / semi space frames and shall be fitted with standard bumper brackets and the standard stiffener in original road going vehicles. In the latter case addition al bolts on to the stiffener / body / brackets must be introduced to prevent loss of the bumper.

CR53 INTERNAL BUMPER REGULATIONS

53.1 The horizontal element shall be placed within the verticals pacing zone of the vehicle's original bumper.

53.2 The bumpers shall be shaped in accordance with the shape of the vehicle and shall be mounted flush against the inside of the body.

53.3 The bumpers shall be allowed to mount to the chassis of the vehicle and do not require bolts.

53.4 The triangulated construction of the chassis shall end at least 100 mm away from the bumper.

53.5 It is recommended that a body panel / bumper cover mounting plate is fitted to the bumper bar.

53.6 It is highly recommended that competitors take steps to aid the swift removal of the ends of the bumper bars in the event of them being pushed on to the wheel.

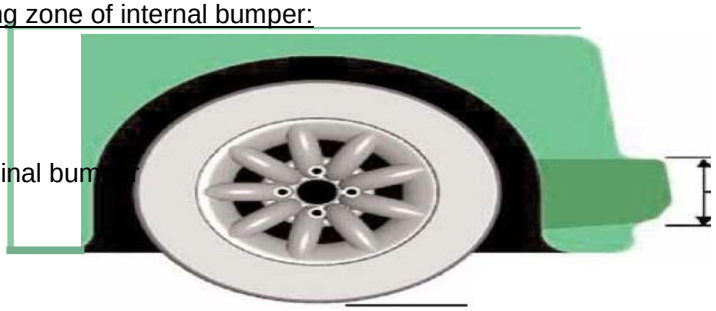
CR54 EXTERNAL BUMPER REGULATIONS – CLASSES PARTICIPATING CONTACT RACING

54.1 These bumpers are only permitted on vehicles participating in races where contact is allowed.

54.2 All bumpers must be attached to their mounting and support pipes by bolts or by welding. The bumper must be connected to the mounting pipe as specified by means of a flange.

54.3 The space between the bumper and the body work, measured from the nearest point of the body to the inside of the bumper may not exceed 50 mm, front and back of the vehicle. The maximum space measured, as above, shall be 30 mm in respect of the sides of the vehicle.

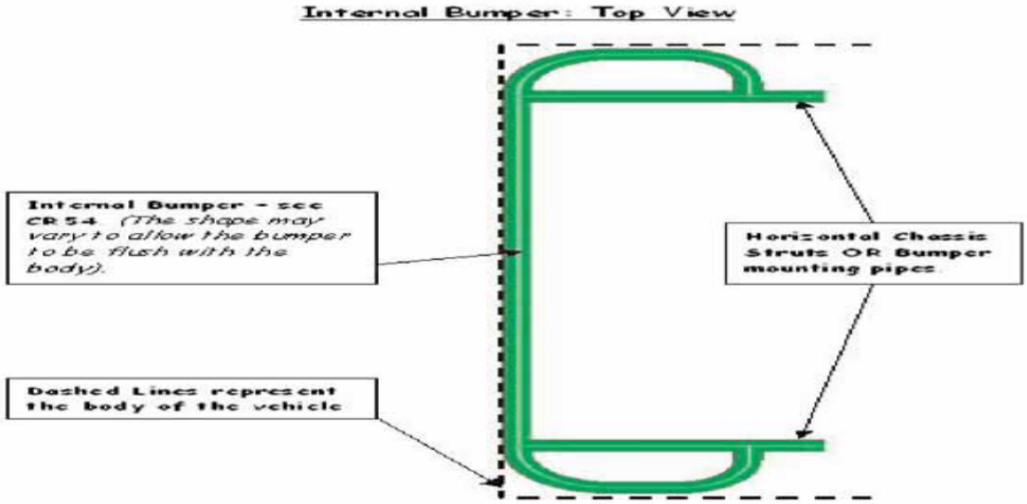
Vertical spacing zone of internal bumper:

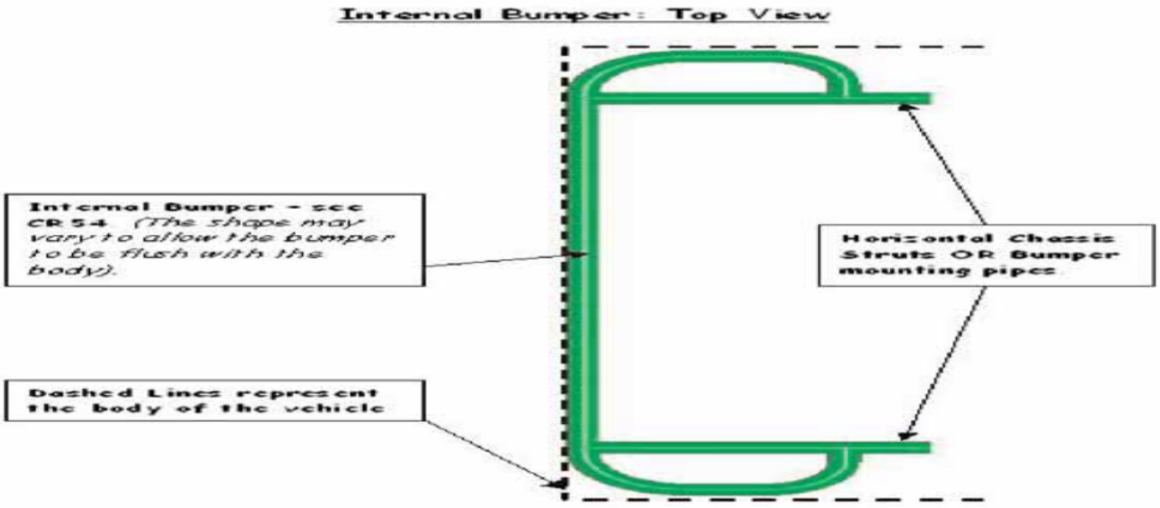


100mm of original bum

Do Class regulations stand on their own?

The class regulations are not stand alone regulations–in each case the general vehicle regulations, the engine building regulations and the safety standards apply. Inn respect of saloon classes the general saloon regulations also apply. Micro midgets and Junior Midgets are sufficiently different to warrant their own regulations.





WHAT APPLIES IF THERE IS A CONTRADICTION?

While every effort has been made to avoid conflicting regulations the following shall apply in the event of a conflict between the various regulations:-

- If the conflicting regulations concern a performance related issue the specific class regulations will apply;
- If the conflicting regulations concern the way an engine is built the relevant engine building regulations will apply; and
- If the conflicting regulations concern safety class regulations will defer to the safety standards, then the construction regulations and then the general regulations will apply.

In order to clear up any confusion between Dirt and Tar based racing it is specifically stated that all these regulations apply equally to both facets of oval racing. Where a whole class exists only on one or the other facet the regulations will say which facet it applies to. Where the class is active in both facets the facet specific regulations will be clearly marked in CAPITAL LETTERS, directly after the numbering.

WHAT ARE THE SO CALLED VARIABLE REGULATIONS?

This is a section that is found at the end of each class. These variable regulations deal with matters such as weights and tyres that could be changed to address performance issues in the classes.

INTERPRETATION OF REGULATIONS AND SPECIFICATIONS

The following GCR is the basis to interpreting all the regulations that apply to motorsport.

GCR226 states: In interpreting motorsport regulations and specifications "what is not specifically per- mitted is disallowed" is the normal concept in keeping with the French regulations on which all motor sporting regulations are based. This means that you may only do something if the rules say you may. Competitors and officials alike shall adopt the following principle when reading and applying the rules: They should only be concerned with the normal plain meaning of the word in of the regulations and shall pay no attention to any claim as to what the regulations were intended to mean.+