

**ASSOCIATION OF
AUTHORISING
BODIES**



RULES & REGULATIONS

2018 EDITION

CLASS 2



"The Association reserve the right to alter/amend the Rules and Regulations as required, and that the Association has the right to review and amend any Class or Construction Rules and Regulations at the end of each racing year."

**VALID FROM JANUARY 2018
UNTIL FURTHER NOTICE**

ALL PREVIOUS EDITIONS ARE INVALID

NEW REGULATIONS IN THIS EDITION ARE MARKED #.

**IT IS THE RESPONSIBILITY OF THE DRIVER/CONSTRUCTOR TO ENSURE THAT ALL
VEHICLES CONFORM FULLY TO THE RULES CONTAINED WITHIN THIS DOCUMENT.**

CLASS 2

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CLASSES

Class 1 Under 1000cc Front Wheel Drive Saloons of specified type and manufacturer.

Class 2 Up to 1300cc, limited modification vehicles

Class 3 Over 1421cc, front-engined rear wheel drive, modified saloons

Class 4 Up to 1130cc modified vehicles

Class 5 1131cc - 1420cc modified vehicles

Class 6 Front wheel drive modified vehicles – Restricted minimum capacity.

Class 7 Over 1421cc rear wheel drive, modified vehicles

Class 8 Up to 1420cc Specials

Class 9 1421cc - 2070cc Specials

Class 10 Over 2071cc Specials

Junior Specials Under 1200cc Vauxhall Corsa Engined Special - Restricted Drivers Only.

Ladies Classes.

Recommendations for Club/League Racing.

It is recommended that Ladies are given the same amount of racing as Men.

Class 11. Classes 1 & 2 will race together duly handicapped/Staggered.

Class 12. Classes 4, 5 & 6 will race together duly handicapped/Staggered.

Class 13. Classes 3 & 7 will race together duly handicapped/Staggered.

Class 14. Classes 8, 9 & 10 will race together duly handicapped/Staggered.

Class Races - Maximum amount of vehicles allowed on a single straight-line start is, (refer to Members Handbook Track Construction General, rule 2 regarding track width):

All Classes = 8 Vehicles.

NB. Where classes are mixed the maximum number of vehicles allowed on a straight-line start reduces to the lower number applicable to the classes above. E.g.: Specials & Saloons mixed 8 vehicles on a straight-line start.

LICENCE

1. All drivers must hold a NASA Licence obtained through an Affiliated Autograss Club, before they can race. (For a listing of affiliated Clubs - see NASA Website and/or NASA Fixture List).
The driver's NASA issued racing Club and League prefix and number identification shall be confirmed within the NASA Licence.
The NASA permitted number identification shall be a figure 3 numerical figure from 1 to 999. For any number less than 1 or greater than 999 an application must be made to NASA for permission to be allocated the number before it can be used. It is not permitted to prefix any number identification by the figure zero (0) e.g. 0001, 001, 01 ... etc.
Note: Racing on pink application slips will not be allowed.
2. A person over 18 years of age may be issued with a NASA competition licence.
- 3*. A person under 18 years of age and over 16 years of age may be issued with a NASA Competition Licence provided that the official letter of consent to compete is received from his/her parent or legal guardian.
- 4*. A person under 16 years of age and over 12 years of age may be issued with a NASA Junior Competition Licence provided that the official letter of consent to compete is received from his/her parent or legal guardian. See Class 1 & Junior Specials Rule Books.
- 5*. All NASA Competition Licence holders under 18 years of age and over 12 years of age must produce their copy of the letter of consent signed by their parent or legal guardian to any official when required.
- * **All Application Forms and Letters of Consent for under 18's are available from your Club Secretary.**
6. A Men's Licence entitles you to race in Men's Classes only, and Men's Championships.
7. A Ladies Licence entitles you to race in Ladies Classes only, and Ladies Championships. (A lady may apply for a Men's Licence, and then MUST race in Men's Classes only).
Note:
A Lady competitor will not be allowed to change her competition licence (i.e. Men's to Ladies or Ladies to Men's) during any one season.
8. **Junior Drivers** must use **either** a Class One vehicle and **or** a Junior Special vehicle **only**, in Junior races. They **must not** compete with Men or Ladies, or race any other Class of vehicle. See Class 1 & Junior Specials rule books for Junior Licence details.
9. A competitor/driver must produce his/her licence to any official when required.
10. NASA reserves the right to refuse a licence to any driver who has been refused a current road licence for medical reasons.
11. NASA also reserves the right to refuse or cancel any issued identification numbers and letters. Frivolous or obscene number/letter combinations are prohibited.
12. All licences must have a current photograph of the Licence Holder affixed to the Licence at all times.
13. If you lose your Licence, please contact your own Club Secretary for details of reapplication.

GENERAL INSTRUCTIONS FOR APPLYING FOR A NASA LICENCE

No one is allowed to race in a NASA Class until they have received their licence or a day licence has been issued.

1. You must obtain an Application Form for your Licence from your Club Secretary, giving to that Secretary your subscriptions for your Licence. The Club Secretary must sign and date the form and also stamp it with the Club Stamp, if the club has one.
2. You will also receive an envelope with the address of the person to whom you must send the Application Form.
3. The Form is in quadruplicate and when filled in you should hand the yellow copy back to your Club Secretary, keep the pink copy for yourself and send the two white forms to the Registration Secretary for your League together with a STAMPED SELF-ADDRESSED ENVELOPE. FAILURE TO SEND A STAMPED SELF-ADDRESSED ENVELOPE WILL RESULT IN YOUR LICENCE NOT BEING ISSUED.
4. When filling in the Application Form, please print all the details and mark the appropriate Licence that you are applying for. A Full Mens is for a Man's Licence and likewise with the Full Ladies, although if a lady wishes to race with the men only and wishes to compete at the Men's Championships and not at the Ladies' Championships then she too must apply for a Full Men's Licence. A Mechanics Licence is for persons who wish to be mechanics and/or officials and a Membership card is for Officials. (If applying for a Junior Licence then the Application Form must be countersigned by a Parent or Guardian). A copy of the NASA letter of consent for Juniors and drivers under 18 when they apply for a licence, must also be sent with the application form, otherwise the application will not be processed.
5. If you have any problems regarding the above, and with your Application then please contact the person to whom you will send or have sent your Licence application.

PLEASE NOTE FAILURE TO COMPLETE THE APPLICATION FORM CORRECTLY WILL RESULT IN IT BEING RETURNED TO YOU UNTIL IT HAS BEEN COMPLETED SATISFACTORILY.

DEFINITIONS

A race meeting – for the purpose of definition by NASA is an event where one or more cars travels around or along a track at a speed greater than “walking pace”.

Active /Adaptive/ semi-Active Suspension

The vertical movement of a vehicle’s wheels relative to the chassis or vehicle body is controlled by an automatic onboard system/device in conjunction with electrical/optical/hydraulic sensors and control unit/computer to detect/monitor body and or chassis movement in relation to the surface the vehicle is being driven upon.

Aerofoil/Spoiler - Any device or part of a vehicle which affects airflow over a vehicle to create an aerodynamic advantage.

Air cooling hole - A single hole or series of holes up to a maximum of 4 in number of 50mm (2") maximum diameter cut in the rear panel or rear half of the rear boot/rear luggage compartment lid or rear engine cover/rear bonnet of a vehicle to allow the passage of cooling air.

Ambulance – A vehicle constructed to take a stretcher, which carries sufficient First Aid equipment and personnel to cover all foreseeable accidents at an event, and is capable of transporting a stretcher case to hospital in comfort and safety.

Authorised Personnel – Driver, Mechanic, Marshal, Scrutineer or Official who has signed on.

Ballast - Non-functional material added to increase weight.

Bulkhead A Bulkhead is a partition or panel separating any two vehicle compartments.

E.g. Engine compartment and drivers compartment.
Luggage compartment and drivers compartment.

Class - Vehicles grouped together governed by specified Rules.

Cross Over Rule - Vehicles must hold a straight line until the appropriate marker has been passed.

CWP/cwp - Crown Wheel Pinion.

Driver's Compartment - Saloons

The driver’s compartment is deemed to finish/end/cease at an imaginary line, across the vehicle immediately behind the driver’s seat. i.e. at the rear face of the driver’s seat.

Enclosed Space - An area which is fully enclosed by material such to prevent access to any point within that area for fire extinguishant.

Engine - An internal combustion device for the production of motive power, consisting of one or more fuel combustion chambers with a common rotating internal output shaft, as produced by a NASA Recognised manufacturer.

Engine Ancillaries – Carburettor/Throttle Bodies/Injection, inlet manifold, exhaust manifold, exhaust system.

Event – A continuing competition held over a period of one or more days.

False Start – Vehicles commencing a race before the start of race signal is given.

Gauge - In all references to measurements, "gauge" refers to British Standard Wire Gauge. (See Table for gauge details).

Local or Slight Modification - The absolute minimum modification or alteration to an original manufacturer's vehicle body panel.

NASA – all references to NASA refer to the National Autograss Sport Association Ltd.

Official Vehicle – Vehicles such as Tractors, Breakdown vehicles or other vehicles in the custody or control of the Club/League.

Oil tank – A container for the storing of oil including breather system catch tank, oil reservoir and or dry sump tank.

Padding/Cushion.

An enclosed non-metal item such as cloth bag filled with soft material stuffing to support or ease or “fill in” gap between driver body and seat.

Parent – in the context of these rules is the natural parent of any licence holder who is under 18yrs of age. It does not include a step parent, the “partner” of a natural parent or a guardian who has not been appointed as such by a court. It does include a “Legal Guardian” who will be a person who has been appointed by a court to act as such.

Passive suspension.

The vertical movement of a vehicle’s wheels relative to the chassis or vehicle body is determined entirely by the surface the vehicle is being driven upon.

Private Vehicle – Vehicles that are not owned by the Club/League and not in the custody or control of the Club/League.

Proprietary / Proprietary Manufactured. – An item or component that is produced, manufactured and marketed by a NASA recognised manufacturer.

Pump Fuel - A type sold to the public in the United Kingdom at roadside Filling Stations. L.P.G. / Methanol are not allowed.

Restrictor - A device of metal used for controlling the passage of the air/fuel mixture between two points.

Re-Run - A repeat of the previous race minus exclusions and non-runners, if any, with original grid positions and any penalties imposed in the original race being maintained.

Rev Limiter – A device that controls and or restricts engine maximum RPM.

Silhouette - The silhouette is the shape of the vehicle when viewed from the front, back and side elevation, and when viewed from the top.

Skimming of Panel(s) - The removal of: Part of or completely of an interior panel without detriment to the structural strength of the vehicle bodyshell. Specifically excluding the following: Door pillars/posts, front bulkheads, metal dashboards, sills. Drivers compartment floorpan, and/or other panels as defined in the rules.

Track - The area within the confines of the spectator barrier.

Traction/Launch Control - An automatic and/or electrical and/or optical and/or mechanical and/or pneumatic and/or hydraulic method of controlling:

- a. The vehicle driving wheel or wheels rotational speed in relation to the distance travelled by the vehicle.
- b. The vehicle suspension system in relation to differing start- line settings and racing settings.

By means other than direct human driver action upon the accelerator and/or throttle and/or engine fuel delivery activator.

SAFETY ROLL CAGE

Roll cage specifications stipulated within this rule book are the minimum acceptable. Members should take account of the condition, physical strength and style of the vehicle and of any structural modifications to the body-shell that have been carried out and fit additional bars to the safety roll cage to satisfy themselves in respect of the overall safety of the vehicle. NASA are not responsible for the failings of any roll cage as a result of its lack of design strength or manufacturing integrity.

The basic purpose of a roll cage is to protect the driver if the car should overturn, or be involved in a serious accident. This purpose should always be borne in mind during Roll Cage selection. All Roll Cages must comply with the NASA Design and material thickness specification. The NASA design is a minimum requirement for Autograss Racing only. Extra bars to provide further Protection – material steel only, may be fitted, design free. Roll Cages designed and / or manufactured for use in other forms of motor sport may not be suitable for Autograss Racing.

The roll cage design including additional and or extra bars fitted to the roll cage and or vehicle structure, and component mounting bars must not impede driver access to or egress from the vehicle or access for marshals/medical personnel/assistance in the event of a roll over or on-track incident.

Note.

- a). All Roll Cages must be constructed of steel with the individual component bars welded together (i.e. 'Weld In' roll cages).
- b). 'FIA Copy' or 'Other Motor sport Copy' type 'Weld in' Roll Cages are prohibited.
- c). The use of a Roll Cage with individual component bars bolted together (i.e. a "Bolt Together" roll cage) is prohibited.
- d). All Door bars must be as NASA requirements. 'FIA' or 'FIA Copy' or 'Other Motor sport Copy' 'X (cross) type door' bars on their own are prohibited.

1. Whenever bolts and nuts are used, they must be of steel and a minimum of R or S quality. Square headed bolts must not be used.

Note.

For the complete roll cage installation, including associated "Cross Brace" and "Cross Member", all of the floor and bodyshell fixings and "fixing plates" nuts and bolts must be correct and fit for purpose. The use of "Half head bolts" "Half nuts" or "cut down" full bolt head and or nuts prohibited. The use of "lightened and or "drilled shank/stem" bolts/set screws is prohibited."

2. Welding.

The roll cage must be a welded metal construction.

- a). All welding must be of the highest quality possible, with full penetration.
- b). Where any bars are welded together the joint mating surfaces must be entirely welded.

NASA via a designated Scrutineer reserves the right to reject any welding that may be deemed insufficient and or incorrect.

3. Roll Cage "Inspection Hole".

An inspection hole may be drilled in each of the mandatory component bars of the complete cage, i.e. uprights, roof bars, bracing bars, diagonal bars, driver side bars 3/16" (5mm) size in diameter, at least 3" (75mm) away from any weld, and encircled in an contrasting/outstanding colour paint.

Note.

In order to verify the tube wall thickness a scrutineer or NASA designated official can request the drilling of an inspection hole at any point or points of the roll cage component bar tube.

Refusal to comply with a request to fit a "inspection hole" will immediately deem the vehicle as being in contravention of the NASA vehicle construction rules and make the competitor and or member concerned subject to disciplinary action.

4. The roll cage including associated "Cross Brace" and "Cross Member" bars MUST be of steel, including all "fixing plates" and their associated nuts/bolts etc.
5. The roll cage, including side bar and brace bar tubing, must not be used as a medium for the flow of oil, water, fuel or the internal passage of electrical wiring.
6. Where any bars are welded together the joints must be completely welded.
7. The use of a proprietary manufactured steel roll cage are permitted. See Rule 8.

8. All NASA permitted proprietary manufactured roll cages must comply with NASA design, complete with the correct proprietary manufactured additional bars (e.g. door bars and diagonal) fitted as required (See Fig.1).
 Tube to be cold drawn seamless carbon steel, with a minimum yield strength of 350N/mm.
 Permitted minimum diameter and tube wall thickness sizes:
 32mm (1¼") / 38mm / 42mm Diameter with an absolute Minimum wall thickness = 2.5mm.
 50mm Diameter with an absolute Minimum wall thickness = 2.0mm.
 See rule 11 for associated material tolerance.
 See Figure 1 for roll cage design.
9. The NASA permitted proprietary manufactured roll cage additional bars (Only door bars and diagonals) must be fixed by welding.
10. If a NASA permitted proprietary manufactured roll cage has been modified by fitting of additional bars (only door bars and diagonals) and the bars being welded in place by persons other than the original roll cage manufacturer, then the additional bars must comply in all respects, including stated minimum specified thickness 2.5mm and or 3.0mm and associated tolerances to NASA required design. See Rule 11.
11. All NASA permitted roll cages must comply with NASA design.
 The main roll cage structure will comprise:
 Two main hoops (See rule 13).
 Roof centre bar, roof cross bar and roof side bars (See rule 16).
 Floor level front to rear bars (See rule 16).
 Front and rear cross bars (See rule 17).
 Bracing bars (See rule 18).
 Door bars (See rule 19).
 Diagonal bars (see rule 20).

Material

The main roll cage structure must be constructed of either:

- (a). Steel circular section tube with a minimum diameter of 32mm(1¼") and with a minimum wall thickness of 2.5mm.
 Or
 (b). Steel box section tube with a minimum size of 30mm x 30mm and with a minimum wall thickness of 3.0mm

Wall thickness tolerances.

- i. Steel circular section tube: maximum tolerance = 0.2mm. I.e. the absolute minimum thickness at any point = 2.3mm.
 ii. Steel box section tube: maximum tolerance = 0.5mm. I.e. the absolute minimum thickness at any point = 2.5mm

Note.

The tolerances specified in i. and ii. above are only to take account of local variations and imperfections in the wall thickness of manufactured steel tube.

It is not permitted to construct a roll cage from material that has been manufactured, sourced and or supplied with a specified wall thickness that is less than the minimum requirement indicated in (a) or (b) above.

Each component bar of the roll cage must measure at or above the dimensions stated in (a) or (b) at one or more points. The measurements will not be taken on "seams" or "bends".

- # The above will be enforced by taking measurements throughout a roll cage and, if there is evidence that the material used is entirely below the required wall thickness, or if at any point the wall thickness is found to be below the absolute minimum, the cage will be deemed non compliant and the vehicle will not be permitted to race.

12. No protection bars are to be connected to the roll cage.
13. A Roll Cage must be made of two main hoops and associated mandatory construction bars. (See Fig. 1.).
 One hoop at or as close as possible to following the front windscreen pillars ("A" Posts).
 One hoop at or as close as possible to, following the "B" Posts - If forward of "B" post then within 75mm (3") - If behind the "B" post not more than 254mm (10") to the rear of the driver's helmet, when the driver is seated.
 The linear distance of the bar between and joining the front hoop and rear hoop must be of a length as necessary to join the two hoops at the top of the "A" and "B" posts. I.e. at each of the points where the "A" and "B" posts join the body-shell roof panel.

The main roll bar hoops and joining bars must be placed as near as possible to the roof, in order to limit crushing in the event of a somersault or roll-over.

Note.

Each of the roll cage individual component bars must be of a single continuous length of tube. i.e. One length bar per part. The forming of a length of tube from two or more lengths by welding and concealing the welded joints by grinding/smoothing is prohibited.

14. The underside of the top bar of the roll cage must be placed as near as possible to the roof, and be not less than 75mm (3") above the helmet of the seated driver.
15. The rear roll cage hoop uprights must be straight and must be vertical +/- 50mm (2") measured at the top of the hoop. (See Fig 2.).
16. Front and rear hoops must be connected by a minimum of:
At the top:
 Three front to rear bars fitted very near to the underside of the vehicle roof, one along each side of the roof, and one along the middle. (See Fig. 1.).
 The box shape and or frame formed by the roll cage roof bars must be such that the driver's body, including torso is within the box and or frame perimeter when seen in plan view from above.
 The fitting of an additional diagonal or two diagonal bars from either or both of the front upright top corners to either or both of the rear upright top corners is permitted.
Note. The Two diagonal bars may be a substitute for the centre bar.

At the base or bottom:

Two front to rear bars, one along each side, consisting of a steel tube (30mm x 30mm box section minimum, 50mm x 50mm maximum 32mm(1¼") circular section minimum, 50mm circular section maximum) – with wall thickness as specified in rule 11 fitted (by means of welding).

Steel plates (minimum surface area 6 sq ins) (3871 sq mm) to be fixed to the frame at a maximum of 450mm (18") centres and bolted (Min 2 No. 10mm Dia. per plate) through the floorpan to a steel plate of equal size.

See also Chassis/Bodyshell Rule 2.31.

17. Cross bars

The front nearside upright and front offside upright of the hoop must be connected by one front cross bar, consisting of a steel tube box section 30mm x 30mm minimum, 50mm x 50mm maximum, 32mm(1¼") circular section minimum, 50mm circular section maximum – with wall thickness as specified in rule 11 fitted (by means of welding), at either "dash panel" level or floor or low level. See Fig. 1.

Note. If a floor level bar of the specified size is fitted, then a steering column support cross bar of a minimum size of 25mm box or circular section may also be fitted at "dash panel" level.

The rear nearside upright and rear offside upright of the hoop must be connected by one rear cross bar consisting of a steel tube box section 30mm x 30mm minimum, 50mm x 50mm maximum, 32mm(1¼") circular section minimum, 50mm circular section maximum – with specified thickness fitted (by means of welding), at either floor or low level. See Fig. 1.

Cross Bar Floor Plates.

Where the above bars are fitted at floor or low level then steel plates (minimum surface area 6 sq ins, (3871 sq mm)) to be fixed to the frame at a maximum of 450mm (18") centres and bolted through the floorpan to a steel plate of equal size.

See Rule 23, also Chassis/Bodyshell Rule 2.31.

18. Bracing Bars.

Two straight bracing bars must be fitted from the rear hoop, one (1) on each side, towards the rear of the vehicle at an angle not exceeding 60 degrees with the horizontal.

The bars MUST be fixed within 100mm (4") of the point of intersection of the rear upright and the top rear bar (See Rule 11 & Fig. 1)..

Note:

Each of the individual component bars must be of a single continuous length of tube.

It is not permitted to mount any rear bracing bars to the vehicle rear parcel shelf or rear seat bulkhead.

19. Door / side bars.

Two side bars (Sb), each consisting of a single continuous length of tube, must be fitted inside the driver's door and the passenger door, on the outside of the main roll bar uprights. They must be fitted as close as possible to the "A" and "B" posts. They cannot be fixed on the vehicle coachwork itself. The angle of the side-bar with the horizontal must not exceed 5 degrees, and be mounted between 100mm (4") and 150mm (6") apart, for the protection of the lower half of the driver's body. (See Fig.3). It is recommended the 3 No. or more vertical upright bars joining the bottom side bar to the top side bar at regular intervals be fitted. The fitting of additional side cross bars made to the same specification as the roll cage requirements is permitted.

20. Diagonal Bar.

There must be a minimum of one diagonal bar fitted from the point of intersection of the offside rear upright with the nearside to offside rear hoop top bar to the bottom of the nearside rear upright or vies-versa. (See Fig.1). The fitting of two diagonal bars to form a cross is permitted.

21. Triangulation Bar.

There must be a minimum of one Triangulation bar (Tb) fitted on each side at high level to brace and or gusset the nearside top bar and the nearside rear upright and the offside top bar and offside rear upright - steel tube circular or box section 25mm minimum 2.5mm minimum wall thickness (by means of welding). The point of connection on each top bar and upright must be a minimum of 100mm (4") from the point of intersection of each top bar with each rear upright. See Figs. 1a, 1b, 1c, & 3.

22. Front Upright Brace Bar (Fb).

There may be a minimum of one additional Front Upright brace bar (Fb) fitted on each side at a near vertical angle from the vehicle floor/floor frame, to the top of the roll cage hoop, steel tube 32mm(1¼") circular or box section 30mm minimum with specified thickness (by means of welding). The point of connection on each top bar must be a minimum of 100mm (4") from the point of intersection of each top bar with each front upright. See Figs. 1a, 1b, 1c, & 3.

The front upright brace bar may be connected to and pass through the door bars to connect to the floor frame or be directly connected to the floor frame.

23. Floor Plates – Uprights, Brace Bars & Floor bars.

All roll bar uprights and bracing bars must have adequate steel plates welded to the bottom, with a contact area of at least 6 sq ins (3871 sq mm), and have the same thickness as the tube.

The plates must be bolted through the floor to a steel plate of equal size.

The plates shall be joined together by at least two bolts, minimum 10mm (3/8") diameter.

Note.

When or where a roll bar rests on a box member, the latter must be locally reinforced by a structure of welded bolts or tube ends. (See Fig. 4).

24. The following brace bars **only** are permitted to pass through the passenger compartment to front engine/luggage compartment bulkhead.

i. A brace bar from the nearside and offside front roll cage upright to the front engine/luggage compartment nearside and offside inner wing/bodyshell front suspension top support housing. I.e. nearside upright to nearside inner wing and offside upright to offside inner wing only. No part or component of the front suspension may be supported from or connected to this brace bar. (See Fig. 12).

ii. The brace bars as described in "i" or any other brace bars cannot pass through the vehicle floorpan or any other bulkhead.

25. It is prohibited to directly connect any mechanical component, except damper units to the roll cage.

VEHICLE CONSTRUCTION RULES - CLASS 2

Must be a Rear Wheel Drive Saloon, Estate/Hatchback vehicle or a Front Wheel Drive Saloon or Hatchback vehicle, with only two valves per cylinder.

A vehicle produced and manufactured by a recognised automobile manufacturer for which a Technical Service Data Sheet must be published in either of the following publications:

TECHNICAL SERVICES DATA MANUAL - PALGRAVE - Up to 1985.
TECHNICAL SERVICES DATA MANUAL - GLASS'S GUIDE - 1986-2000.

NB

The vehicle **MUST** be listed on the contents page of the relevant Technical Services Data Manual, and the Data Sheet page **MUST** be headed with the vehicle title.

The use of RWD MPV or Van and/or Commercial vehicles, or FWD Estate, MPV, and/or Van and/or Commercial vehicles are prohibited.

Certain vehicle manufacturers produce "Special" or "Homologation" "Rally" or "Limited Edition" and 'Competition' including low volume/number models and or variants. Many of these are not listed in Palgrave & Glasses Guide Technical Services Data Manuals. It is the Competitor's and/or race vehicle constructor's responsibility to contact a Scrutineer to confirm that the vehicles are eligible. i.e. Listed as required; **before** using the vehicle. E.g. The Peugeot 205 / 106 "Rallye" is not permitted.

NASA reserve the right to have a part removed from a competitors vehicle and retain that part for examination to ensure compliance with the original vehicle manufacturers standard production details. Such components may be returned to the competitor concerned or confiscated at the discretion of the NASA Chief Scrutineer.

The engine cc **MUST** comply with class cc limits.

The use of turbochargers, superchargers, fuel injection and/or rotary engines is **NOT** permitted.

The interchanging of any unspecified component(s) between different models of the same make is prohibited.

Vauxhall Corsa vehicles

It is permitted to substitute the original engine and gearbox with that of a 1.2 or 1.3 Vauxhall unit. See Section 19 - Check Sheet rules.

For Front Wheel Drive vehicles only.

Minimum wheelbase of vehicle = 2286mm (90").

The original vehicle manufacturers wheelbase for the particular make and model of vehicle must be retained.

e.g. for a FWD vehicle with an original wheelbase of say 2400mm it is not permitted to either lengthen the wheelbase to 2500mm or shorten it to 2300mm.

Note - Fuel Injection

Due to the fitting of fuel injection as standard production by various original vehicle manufacturers the permitting of such fuel injection both single point and multipoint is being considered for introduction at a future date. 2 years advance notification will be given prior to its introduction.

CONSTRUCTION RULES GENERAL

1. Competitors **must** ensure that their racing vehicle conforms to NASA Rules and Regulations.
Where a competitor is under 18 years of age the responsibility is shared with the parent/guardian.
2. Only methods of construction and modifications as listed are permitted. Any further modifications, other than those permitted, are prohibited.
Components used must be NASA Scrutineers Committee permitted "Standard production" or "Standard production replacement" items.
Unless the rules and regulations state that any part can be fitted or removed or that removal or modification, including a change of material from original, of any standard part is allowed, then the part cannot be fitted or removed, and the standard part cannot be removed or modified or altered or changed or substituted in anyway whatsoever.
Components fitted to or specifically manufactured for; including low volume/number, "Rally", "Rally Special", "Motorsport", "Competition" "Homologation" and "Limited Edition" models or variants of vehicle by the original vehicle manufacturer or manufacturer appointed organisation or company are prohibited.
Any further modifications other than those listed are prohibited.

In the event of any doubt a Scrutineer must be contacted for clarification before fitting and or using the component concerned.

Note.

Unless the rules and regulations specifically permit a method of construction and or modification then it should be assumed that other type of construction, materials, modifications are not permitted. Intentional or deliberate (Including concealment) non-compliance with NASA vehicle construction rules will make the competitor and or member concerned subject to disciplinary action.

3. A vehicle must not be derived from a "Special" or a sports car.
Original manufacturer's convertible or cabriolet or soft top or sports car vehicles cannot be fitted with a metal roof or converted in any way for use as a saloon or closed car.
4. A vehicle must not be capable of seating any person other than the driver.
5. All driver controls must be operated from, and remain within, the drivers compartment at all times.

6. Traction / Launch Control (See definitions) systems prohibited.
7. NASA reserves the right via an appointed Official and or Scrutineer to request a competitor (Note. For under 18 years of age this includes the parent/guardian), to remove any component part of the vehicle for inspection and or measurement for compliance with the regulations.

The removal of the component shall be carried out by the competitor concerned and or competitor's mechanic under the supervision of the appointed Official and or Scrutineer.

Refusal to comply with such a request and or provide the item for inspection will immediately deem the vehicle as being in contravention of the NASA vehicle construction rules and make the competitor and or member concerned subject to disciplinary action.

8. NASA reserves the right via an appointed Official and or Scrutineer to retain any component part of the vehicle for inspection and or measurement for compliance with the regulations.
Such components may be returned to the competitor concerned or confiscated at the discretion of the NASA Chief Scrutineer.
9. The vehicle must be maintained in good order. Vehicles in poor condition may not be permitted to race at the discretion of the scrutineer.
10. The vehicle must be able to drive to scrutineering and to, around and within the pit area without any assistance. If the vehicle suffers damage due to an on track incident then assistance as necessary to return it to the pit area for repairs and or to transporter for removal from meeting is permitted.
11. Driver Arm Restraints.
It is the responsibility of all competitors to ensure that their arms are restrained from extending outside of their vehicle in the event of an accident or roll. This must be done by the use of either a permitted arm restraint or window net or by their seating position within their car.
It is the driver's responsibility to ensure that any adjustments are correct and that the necessary equipment is properly fitted. Drivers will be checked in their cars by scrutineers. Officials will monitor the use of this equipment as they do with other safety equipment. Drivers who appear to be flagrantly ignoring the intended safety considerations of these rules will be penalised.
Note:
 - a). All restraint systems must not impede, entangle, unlock, unfasten, disengage nor prevent the correct reach and or access to and or operation of any safety harness or driver operated vehicle controls (e.g. Steering. Ignition switch. Cut off switch. Gear lever, etc.).
Arm restraints should be released by the single opening of the seatbelt fastening mechanism.
It is the competitor's responsibility to ensure compliance when making the choice of restraint system.
The restraint System must be in the form of either "arm Restraints" or "Window Webbing".
The both may be used separately or together.
Proprietary manufacture Arm Restraints for motorsport only permitted. Simpson/Sparco/TRS/ Arm Restraints permitted.
For window webbing details see rule 3.5.
 - b). It is Competitors responsibility to contact a scrutineer and or designated official to confirm the particular restraint system form of construction is eligible. i.e. permitted by the NASA Scrutineers Committee **before** using it and or them.
 - c). When a restraint system and or construction is inspected and is not to the satisfaction of a scrutineer and or designated official then it is deemed as being in contravention of the NASA vehicle construction rules and will not be eligible for use. Therefore it must be removed immediately. The competitor is not permitted to race until a permitted "Restraint System" is used.
 - d). The 'Restraint System' form of construction must be only as permitted by NASA. The types of construction will be subject to regular review by NASA to ensure suitability for Autograss racing.
NASA reserves the right to amend the permitted "Restraint System" construction requirements at any time.
12. The Scrutineer's decision, as to the eligibility of any component or part and or suitability of a vehicle for racing is final.

1 ENGINE/GEARBOX/AXLE

- 1.1 The vehicle Palgrave/Glasses Guide Technical Services Data Sheet will be used as a reference in conjunction with the "NASA Vehicle Check list" when checking the eligibility and legality of the vehicle and/or its components. See Section 19 CHECK SHEET.
- 1.2 The engine, transmission or gearbox and rear axle including all component parts must remain as per manufacturer's original specification, and be appropriate to that make and model. See Section 19 CHECK SHEET.
Vauxhall Corsa vehicles
It is permitted to substitute the original engine and gearbox with that of a 1.2 Ltr or 1.3 Ltr Vauxhall unit (See Check Sheet).
- 1.3 The engine and transmission must be fitted in the original position in the vehicle/chassis. All engine and gearbox/transaxle and axle mountings must be retained in their original positions, be of good order and be appropriate to that vehicle make and model. Standard production originals and NASA Scrutineers Committee permitted replacement engine/gearbox/axle "mountings" only must be used. Modification to and or of such mountings prohibited. The conversion of "flexible type" mountings to "solid type" mountings prohibited.
Vauxhall Corsa vehicles.
It is permitted to substitute the original engine and gearbox with that of a 1.2 Ltr or 1.3 Ltr – 2 valve per Cylinder Vauxhall unit.
- 1.4 Standard production originals and NASA Scrutineers Committee approved replacement engine/gearbox/axle components, including "mountings" only must be used. The use of "Competition" con-rod bolts prohibited.
- 1.5 The engine, as produced by the original vehicle manufacturer, must not exceed 1300cc. See rule 1.6.

1.6 Pistons & Cylinder Overbore

The cylinder oversize bore or re-bore is on the manufacturers original engine size, as fitted to the make or model of the vehicle, and not on the class cubic capacity limit.

Standard production replacement pistons up to the vehicle manufacturer's sizes available **ONLY** are permitted.

For RWD vehicles a maximum of + 0.060" oversize bore is allowed.

For FWD vehicles a maximum of + 0.040" oversize bore is allowed. – For certain FWD vehicles standard production oversize replacement pistons of + 0.020" only are available, hence sizes greater than this are prohibited.

For Vauxhall Nova, Corsa and Nissan Micra vehicles - see CHECK SHEET Rules.

Note.

- i. Where a standard production replacement piston is not available in the specified maximum stated permitted overbore sizes then, it is NOT permitted to engage specialist piston manufacturers to produce a piston to such a size or modify non standard replacement pistons to fit.
- ii Only pistons originally designed by the original vehicle manufacturer to protrude above the cylinder block top face into a cylinder head combustion chamber may protrude above the cylinder block top face.

1.7 Cylinder Head.

The cylinder head **MUST** be the correct type for the engine involved. (See rules: 1.2 & 1.22 & Check Sheet).

The fitting of a "distributor-less" cylinder head in place of an original "distributor" cylinder head is prohibited.

Note.

- i. Reconditioning of the cylinder head and its associated components must be carried out in accordance with the original manufacturers recommendations and accepted "reconditioning and repair" practise only.

Note.

Reconditioning and or removal of metal that is carried out to the extreme will result in components etc; being deemed as outside the Class regulations and thus illegal.

- ii. The cylinder head thickness must remain such that no more metal is removed by re-facing etc, than the formula {Minimum cylinder head thickness = Original manufacturers thickness - (original manufacturers thickness x 2 %)} permits.

Note. - For Vauxhall Nova, Corsa and Nissan Micra vehicles the cylinder head thickness, regardless of the formula stated must not be less than the absolute minimum stated in the CHECK SHEET Rules.

- iii. The inlet port and exhaust port surfaces, within the cylinder head, must remain as manufacturers original standard production finish and dimensions (See drawing No 1).

The "chemical cleaning" of port surfaces is permitted only.

The "cleaning" or "smoothing" of port surfaces by removing metal or polishing of the original standard production finish via the use of wire brushes and or flap wheels and or grinding stones and or any other method, including refinishing a modified port, is not permitted.

- iv. Cylinder head 'lead free conversion' permitted.

A "3 angle cut" to valve & valve seat permitted.

Note.

- a). The top face of any valve insert fitted must be below or in line with the combustion chamber face.
- b). The depth of the valve insert must be not greater than that stated in vehicle check sheet.
- c). See check sheet for maximum throat diameter of inlet valve insert.
- d). The cylinder head valve throat must remain as standard production diameter and "As cast" finish.
- e). When fitting a replacement valve insert it is not permitted to machine the valve throat beyond the depth of the new valve insert.

There must be a minimum of 1mm un-machined depth at the internal lowermost part or base of the insert.

f). If a valve has 3 angle cut as standard then the modification or machining to less than or more than 3 angles is prohibited.

g). The "valve seat" must remain within the "area" and or "boundary limit" of the original standard valve seat.

h) For both valve and insert "valve seat" the border line or edge between each individual "angle cut" must be clearly visible. The "merging" or "blending" and or joining together of the separate angle cut surfaces is prohibited.

1.8 Restrictor Plate- Location, Size & Thickness.

All the fuel air mixture must pass through an easily removable SINGLE metal restrictor plate.

This restrictor plate must be of a thickness of between 4mm minimum and 10mm maximum.

It must have an orifice with a maximum parallel bore diameter of the specified size through the entire thickness of the restrictor plate. (See drawing No. 2).

Note:

A "Drop In", "Washer" type Restrictor Plate that fits into a separate receptacle adaptor or plate is not acceptable. It is not regarded as "readily accessible".

For RWD vehicles only orifice bore diameter = 32mm.

For FWD vehicles only orifice bore diameter = 32mm.

- 1.9 Type, number and size of carburettor(s) and air filter(s) free. However, the carburettor(s) and air filter(s) must remain within the engine compartment.

- 1.10 Carburettor adaptor to restrictor plate and to inlet manifold free. Inlet and exhaust manifold(s) free.

1.11 Accelerator/Throttle.

The standard production single "accelerator" or "Throttle" pedal, including "Accelerator/throttle cable" may be retained or removed.

A single "accelerator" or "Throttle" pedal, including a "Accelerator/throttle cable" must be fitted to control the operation of the fuel delivery system to the engine. The engine must be fitted with an 'accelerator' or 'throttle' return spring of sufficient size, strength and movement such that the fuel delivery system closes once the 'accelerator' or 'throttle' pedal is released.

Note. The accelerator cable/connection system must be sufficiently routed, shielded from any heat source, and lubricated to minimise the risk of seizure.

1.12 Transmission/gearbox.

- a). The standard production transmission/gearbox, must remain as per the manufacturer's original specification, complete with all gears including reverse gear and speedometer drives retained.

The drive-shafts, drive shaft vibration dampers and wheel hubs shall be retained in their standard production location and shall remain in their standard production form.

- b). Standard production originals and NASA Scrutineers Committee permitted replacement transmission/gearbox drive-shaft and wheel hub components only must be used.
- c). The transmission or gearbox Gear Selector mechanism.
The standard production gear lever and gear selector system must be retained to control the operation of the transmission system "Gear change" mechanism.
Steering wheel mounted or operated gear change devices are prohibited.
"Quick Shift" gear lever or gear selector devices are prohibited.
- d). Gear Ratios- Restricted.
As listed on the Permitted vehicle's Glasses Guide Technical Services Data Sheet.
- 1.13 Gearbox types - restricted.
Certain gearboxes may be interchanged between models of the same type of vehicle with the same cc (cubic capacity) rating, also as listed in Palgrave/Glass's Guide Technical Services Data Sheets. e.g. Escort 1300 RWD gearbox in an Escort 1300GT RWD. See Section 19 – CHECK SHEET.
Note.
Where a vehicle is listed in the T.S.D as manufactured with both 4 speed and or 5 speed gearbox then either gearbox may be used, provided the correct ratios for each are fitted. The removal and or swapping of gears to create void gear and or "hybrid" ratio units is prohibited. The correct casings complete with correct gears and ratios and associated components must be used.
- 1.14 "Dry sump", "Accusump" and or similar oil systems are prohibited.
- 1.15 Balancing
The original manufacturer's connecting rods, crankshaft, pistons, flywheel, front pulley and clutch cover plate may be "Balanced". Lightening of components is prohibited. Excessive "Balancing" including multiple hole drilling in any single component will be judged as lightening and deemed illegal. The use of "Competition" and or non standard production replacement con-rod studs and or bolts prohibited. (e.g. "ARP" and or "Heavy Duty" types.).
Note.
i. One assembly/set consisting of one connecting rod and big end cap from the same cylinder must remain as standard (not balanced or lightened). The remaining units and components may be balanced to match.
ii. Pistons: One Piston to remain as standard. The remaining pistons may be balanced to match. To be balanced by means of spot drilling only.
iii. Conrods: To be balanced to manufacturers standard only. Removal of metal by spot grinding or spot drilling for "balancing purposes" is permitted for "little end" and "big end cap" only. Removal of metal from "H" section part of conrod prohibited.
iv. The crankshaft, flywheel, front pulley and clutch cover plate to be balanced by means of either or spot grinding or spot drilling.
v. Crankshaft webs: A minimum of one crankshaft web must remain as factory finish. Crankshaft webs must not be chamfered, radiused, narrowed, knife edged, or smoothed or polished. If, in the opinion of the scrutineer, the crankshaft has been modified during the balancing process to improve its performance in other areas then it will be deemed illegal.
vi. The standard production engine crankshaft pulley must be retained in its original standard production location and form. Modification except for balancing or replacement by non standard item prohibited.
- 1.16 Shot peening or tufriding of engine components permitted.
- 1.17 Distributor.
The original vehicle manufacturer's standard distributor as listed in Palgrave/Glass's Guide Technical Services Data Sheets must be retained and correctly fitted. Internal modifications to this distributor are prohibited except for the original "points" and condenser, which may be removed to accommodate the fitting of an proprietary electronic ignition system. The use of an ECU and or distributor originally fitted to a model of vehicle for use conjunction with an ECU prohibited.
- 1.18 Camshaft
A standard production or standard production replacement camshaft only is permitted. The camshaft must remain in its original standard production form. The camshaft identification reference or code number must remain.
Note.
The production or adaptation or modification of a camshaft to provide T.S.D. Manual listed valve timing and/or valve lift, but non standard timing and/or valve lift at regular degrees of rotation is prohibited.
NASA reserve the right to have a camshaft removed from a competitors vehicle and retain that camshaft for examination to ensure compliance with the original vehicle manufacturers standard production details. The use of a non-compliant camshaft is a disciplinary offence.
- 1.19 Rocker/Cam Cover – Restricted.
For vehicles that have a steel "rocker" cover as standard production, it may be retained or replaced with a Alloy rocker cover. Integral rocker system alloy rocker covers prohibited.
For vehicles that have a steel or non-steel "cam" cover as standard production, it must be retained.
- 1.20 Rear axle/transaxle/transmission final drive CWP ratio - Restricted:
i. For RWD vehicles = free.
ii. For FWD vehicles = Standard production CWP ratio only, as listed in the specific Palgrave/Glass's Guide T.S.D. Manual Data Sheet and or Check Sheet for vehicle concerned.
The interchanging of listed CWP ratios is permitted. i.e. any check sheet listed permitted CWP ratio for vehicle concerned may be used with any check sheet listed permitted gearbox. See Section 19 – CHECK SHEET.
- 1.21 Differential types are restricted.
i. For RWD vehicles only.
Locked or welded differentials are permitted. Limited slip differentials are only allowed when fitted as original vehicle manufacturers standard production equipment.
ii. For FWD vehicles only.
The differential must be 'Free' revolving at all times.

- "Locked" or "Welded" or "Powerlock" or "Quaife" or "Gripper" or "Limited Slip" type differentials or "Close Tolerance" "Blue" type and or incorrectly shimmed differentials (i.e. types that are 'free' when cold and "Seized"/"Locked" when at normal operating temperature), are not permitted.
- # iii. FWD Differential Turning Torque.
The differential must have a turning torque of a maximum of 3 lb/ft (36lb/in) (0.34Nm) at all times, when measured at the wheel hub. i.e. When the transmission is set to neutral and the nearside wheel and tyre raised off the ground whilst the offside wheel and tyre assembly remains on the ground, and vies-versa, then when a torque wrench is applied onto the wheel hub nut the maximum turning torque of the differential and drive-shaft assembly must not exceed the stated maximum regardless of the temperature of the unit.
- 1.22 The original standard production rear axle/transaxle/transmission including drive shafts and wheel hubs must remain as originally fitted by the original vehicle manufacturer.
- 1.23 Engine sealing:
All engines must have provision for the fitting of at least one readily accessible scrutineers wire seal. A minimum of two adjacent engine cylinder head retaining studs or bolts must have a single 1/16" (1.2mm) diameter hole pre-drilled in each of them.
- Where the method of cylinder head retention is by means of a stud & locking nut the hole must be located above a cylinder head retaining locknut but below the top surface of the stud. (See Fig.13a).
 - Where the method of cylinder head retention is by means of a bolt the hole must be located through two adjacent edges of the hexagon head of the bolt. (See Fig.13b).
 - Where cylinder head retaining studs or bolts are inaccessible then a single 1/16" (1.2mm) diameter hole must be pre-drilled in two adjacent parts or areas of the engine that are accessible.
- 1.24 Restrictor Plate Sealing:
Restrictor Plate:
The Restrictor plate as described in Rule 1.8 MUST have provision for the fitting of at least one readily accessible Scrutineers seal. A minimum readily accessible single 1.2mm (1/16") diameter hole must be pre-drilled in the restrictor plate either vertically through the plate or horizontally through a corner of the plate. i.e. Where two vertical side faces meet.
- Restrictor Plate Fasteners.
A minimum of one adjacent inlet manifold to restrictor plate to carburettor retaining/fastening bolt or stud must have a single 1.2mm (1/16") diameter hole pre-drilled into it.
Where the method of fixing is by means of a stud & locking nut, the hole must be located above the retaining nut, but below the top surface of the stud.
Where the method of fixing is by a bolt, the hole must be located through two adjacent edges of the hexagon head of the bolt.
It must be possible for a single wire seal to be easily passed through each of the holes in the restrictor plate and fastener and to be joined via a seal, such that the fitting of the wire seal prevents removal and/or substitution of the original Restrictor Plate.
- 1.25 Component Sealing Purpose.
The purpose of sealing is to prevent the engine or key parts being substituted for another unit prior to the inspection of the unit by a designated official. Seals can be fitted to any component or part of a vehicle by a NASA designated official. Refusal to comply with a request to fit a "seal" will immediately deem the vehicle as being in contravention of the NASA vehicle construction rules and make the competitor and or member concerned subject to disciplinary action.
- 1.26 Seal Removal.
Once a seal has been placed by the duly appointed official the competitor and or member concerned must seek permission to remove or "Break" such seals. A seal must not be removed without the express permission of the NASA designated official or NASA Chief Scrutineer.
The person that removes or "Breaks" a seal must be able to demonstrate to any official that permission has been granted for seal removal.
The unauthorised removal or "Break" of a seal will immediately deem the vehicle as being in contravention of the NASA vehicle construction rules and make the competitor and or member concerned subject to disciplinary action.
- 1.27 The interchanging of any unspecified component(s) between different models of the same make is prohibited.

2 CHASSIS/BODY SHELL

- 2.1 All vehicles must be of metal and retain their original shape and silhouette (Including height, width and length) as per manufacturer's original specifications, including engine compartment bonnet or cover. De-Seaming prohibited.
The bodyshell must remain as its original type as produced by the original manufacturer. The conversion of a 2 or 3 door model to a 4 or 5 door model and vies-versa is prohibited. e.g. If a vehicle as originally manufactured is a 5 door hatchback it must remain as a 5 door hatchback the conversion to a 2 door saloon or a 3 door hatchback or non-original door configuration is prohibited.
- 2.2 Original manufacturer's convertible or cabriolet or soft top or sports car vehicles cannot be fitted with a metal roof or converted in any way for use as a saloon or closed car.
- 2.3 The original chassis of the original standard production vehicle must be of integral construction with the original standard production bodyshell. Standard production vehicles that have a separate chassis or a chassis that is separate or able to be separated from the body-shell are prohibited.
It is a Competitor's responsibility to contact a scrutineer and or designated official to confirm that any choice of vehicle is eligible. i.e. permitted by the NASA Scrutineers Committee **before** using the vehicle.
- 2.4 Wheelbase.
The vehicle wheelbase must remain as originally manufactured. i.e. the wheels must remain in their original positions when viewed from the side.

- 2.5 The front bulkhead and floorpan, extending to the rear of the vehicle (Including boot floor/rear engine compartment bulkhead) must be as original manufacture and retained in their original positions.
Slight local modification of the engine compartment bulkhead is only permitted for the provision of apertures necessary for the passage of fuel, oil and water pipes.
- 2.6 The vehicle bodyshell, panels, wings front bulkhead and floorpan etc; must be kept in good repair at all times. Apertures formed as a result of the removal of interior "Trim" "audio equipment/speakers" etc; and/or metal corrosion and/or accident damage must be made good by "Filling in" with steel 20 gauge maximum.
All replacement panels must be as original vehicle manufacturer's design and/or approved by the NASA scrutineers committee.
The covering or infilling of side window or rear window apertures is prohibited.
Panels must not be reinforced. "Foam filling" of panels is prohibited.
- 2.7 "Skinning" restricted.
Skinning of doors and tailgate doors only will be permitted. Slight local part removal or modification of bodyshell driver and front/rear passenger compartment panels, but excluding floorpan, will be permitted for Roll Cage fitment clearance only.
For wheel arches see rule 2.25 and 2.26.
- 2.8 The vehicle engine compartment bonnet or cover must retain its original shape and silhouette as per the vehicle manufacturer's original specification and remain closed/shut at all times whilst racing.
- 2.9 The body shell must be complete with the original luggage compartment lid (Boot/tailgate/hatchback etc) and original engine cover/bonnet. All must be retained in the original position. (See rules 2.8, 2.10 and 2.12).
- 2.10 The following Synthetic Fibre parts only are permitted:
Wheel arch extensions/spats, luggage compartment lids/covers/tailgates. See rules 2.11 & 2.12.
- 2.11 For front engined Hatchback vehicles only
The original vehicle manufacturers fitted rear hatchback/tailgate may be removed and substituted by a synthetic fibre hatchback/tailgate. However 2 diagonal steel bracing bars must then also be fitted in the original bodyshell hatchback/tailgate aperture. The brace bars must be a minimum size of 20mm (3/4") box or 25mm (1") diameter circular tube of a minimum thickness of 16 gauge (1.62mm).
Note
Where the original vehicle is fitted with a tailgate that is 100% automotive glass then the glass must be removed and two (2) diagonal bars as described in the rule 2.6 above must be fitted.
- For front engined Estate vehicles only.
The rear door(s)/tailgate may be removed. However 2 diagonal steel bracing bars must then be fitted in the remaining original bodyshell hatchback/tailgate aperture. The brace bars must be a minimum size of 20mm (3/4") box or 25mm (1") diameter circular tube of a minimum thickness of 16 gauge (1.62mm).
- 2.12 For rear engined Estate vehicles.
The metal "Estate/Hatchback" rear door(s) luggage compartment lids, must be retained.
- 2.13 Bonnet & Boot lids.
All opening bonnet/engine covers/boot/luggage compartment lids must have secondary fastenings to keep them securely closed during racing.
Note.
Failure to ensure that the above remain closed during racing is a Black Flag (Race Disqualification) offence.
The use of bonnet pins with aluminium posts/pins, elasticised luggage straps, string, rope, wire, padlocks, or any fastening that requires the use of a tool to gain access is prohibited.
- 2.14 The removal of any vehicle panel including engine cover/bonnet, luggage compartment lid/boot lid and replacement of the same with non-proprietary replacement prefabricated metal panels is prohibited.
- 2.15 Apertures remaining following the removal of vehicle light fittings and/or units, metal and/or plastic grills, metal and/or polycarbonate or synthetic fibre bumpers, may be filled in by a metal covering of 20 gauge maximum.
- 2.16 No part of the body shell shall have any sharp projecting surfaces, which might cause a hazard, either internally or externally.
- 2.17 Motifs and mascots are not allowed.
Aerofoils and spoilers are only allowed if fitted by the original manufacturer as standard production items.
- 2.18 All exterior and internal trim must be removed.
- 2.19 All light fittings/units must be removed. See Rule 2.15.
- 2.20 Instrument dash board including instruments and instrument cable drives may be retained or removed. (See Rule 3.2.).
- 2.21 Windscreen wiper assemblies must be removed. See Rule 2.28.
- 2.23 Locks and lock assemblies must be removed.
- 2.22 Window winder assemblies must be removed.
- 2.24 Bumpers.
Standard production original bumpers must be retained. Removal of bumpers is prohibited.
Where a bumper is part of a wheel arch, the bumper sides and/or edges may be partially cut and/or trimmed and removed to suit the size and diameter of the wheel and tyre assembly used.
- # Note.
Failure to ensure that the bumper remains fitted during racing is a Black Flag (Race Disqualification) offence.

2.25 Wheel Arches.

Front and rear wheel arches may be altered to facilitate wheel widening. See Rule 2.26. (See Fig.5).

The wheel arch must be fitted below the top surface and not protrude above the top surface of the particular wing they are fitted to.

- # The wheel arch protrusion from the vehicle panel/wing must be no greater than that of the standard production wheel arch for the vehicle concerned.

Excessive removal or addition of material prohibited.

Note.

For the Vauxhall Nova / Corsa vehicle the front wing "Splash guard" may be retained or removed.

- 2.26 A wheel arch/spat must cover/shield the wheel and tyre assembly such that the wheel and tyre assembly does not protrude more than 20mm (3/4") beyond the vehicle body line.

Note.

The "Body line" includes wheel arches/spats. The fitting of "air holes" in wheel arches/spats is prohibited.

Wheel arch support bar/lip.

A steel wheel arch may be fitted with a NASA permitted support bar or lip/edge/border.

If a bar it must be metal and be no greater than 8mm in diameter.

If a box and or flat it must be of metal and be no greater than 8mm in width and 8mm in height.

The above may edge the wheel arch rim only. It is not permitted to form a reinforcement linking with any non-wheel arch vehicle body panel/bumper or vehicle roll cage/floor frame/space frame/protection bars.

NASA reserves the right via an appointed Official and or Scrutineer to reject a wheel arch support/lip construction as being unsuitable for the vehicle concerned.

2.27 Doors.

All doors must be retained and securely welded closed with each having a minimum of three 25mm (1") length visible welds on each upright with one 25mm (1") length visible weld on the bottom. The welding must be carried out such that the welds are either on the outside or inside surface of the doors. Door hinges may be Retained or removed.

Drivers Compartment Doors.

- i. The driver's compartment doors (Nearside and offside) may be modified to leave the outer door "skin" only.

Note.

If the above modification is carried out then there must be two side bars fitted inside the driver's door and Two side bars fitted inside the passenger's door as described in Rule 19 – Safety Roll Cage.

- ii. The door skin may also be substituted by a replacement panel to the original vehicle manufacturer's design and/or as permitted by the NASA Scrutineers Committee.

- iii. The door tops (window frames) may be retained or removed.

- iv. The offside/driver's door MUST be retained at the standard production manufactured height.

- v. The front nearside (passenger's) side door, to facilitate entry and exit to the driver's compartment, may be cut down no more than 1/4 (One quarter) the height of the original standard production manufactured height. I.e. a minimum height of ¾ (Three quarters) of the original door height must remain.

- vi. The driver's compartment doors (nearside and offside) may have a metal door brace bar fitted at the top of the door (and also cut down nearside door), between the front and rear door pillars only. The brace bar to be steel tube box section maximum 25mm x 25mm (1") or 25mm (1") circular section.

Rear passenger Compartment Doors.

The rear passenger's compartment doors (Nearside and offside) and rear tailgate may be modified to leave the outer door "skin" only. See Rule 2.1.

2.28 Scuttle.

The vehicle engine compartment scuttle must retain its original shape and silhouette as per the original vehicle manufacturer's original specification. All air vents/grilles or apertures remaining following removal of trim, wiper assemblies etc; which are located in the front windscreen scuttle panel must be filled in with a suitable covering.

Note.

For vehicles fitted with automotive plastic scuttle the plastic scuttle may be retained or removed. If removed it must be replaced with plain metal of equivalent shape and size.

2.29 Sunroofs: Where a bodyshell has been fitted with a sunroof the following applies.

- If the original integral sliding/tilting steel sunroof is retained, the steel sunroof panel must be securely welded closed by "Spot" or "Seam" welds around the edge of the panel.
- If the sunroof is constructed of a non-steel panel, e.g. glass, plastic, alloy etc; then the original sunroof must be removed and the remaining aperture must be filled in with a steel covering of 20 gauge maximum thickness welded in place as described in (a).
- If a sunroof has been removed the remaining aperture must be filled in with a steel covering of 20 gauge maximum thickness welded in place as described in (a).

2.30 Air Cooling holes:

Where a radiator has been fitted to the rear of the driver's compartment (or in the rear boot/luggage/engine compartment) to allow the exit of air from the rear of the vehicle a maximum of 4 in number 50mm (2") diameter holes may be cut in the rear panel or rear half of the rear boot/rear luggage compartment lid or rear engine cover/rear bonnet only.

Note:

- For **ALL** vehicles it is **NOT** permitted to cut or form additional air cooling or air inlet/exit holes, other than those as described above (see ii) to supplement the existing front or other grilles etc; in any panel/area etc; of the vehicle.
- If the radiator is retained within the original vehicle engine compartment it is **NOT** permitted to cut or form air-cooling or air inlet/exit holes in any part/area etc; of the vehicle.

- 2.31 Floor Frame.
A steel "floor frame" formed by the construction of materials as specified and described in roll cage rules 16 & 17 must be fitted.
Note.
The "floor frame" must not be directly connected to the front sub-frame or any chassis member or any framework supporting the front suspension.

- 2.32 Towing Eye.
The fitting of a "Towing Eye" at the front and rear of the vehicle is mandatory. Specified metal "Eye" diameter is 50mm. For other materials a minimum 50mm, maximum 100mm "Loop" is specified. The "Towing Eye" must not protrude beyond the vehicle bodyline. "Towing Eyes" and "Towing Eye fixings" that are excessively sized or that can be regarded as "Ballast" or "Protection" are prohibited. The original standard production item may be disconnected and removed.

3 WINDSCREEN/GLASS

- 3.1 All vehicle glass (Excluding gauges) must be removed.
- 3.2 All gauges/instruments fitted with a glass lens must have the lens covered with adhesive tape such that the lens pieces are retained in the event of breakage.
- 3.3 A covering of steel weld mesh 1" x 1" (25mm x 25mm) made of a minimum 12 gauge (0.104") (2.64mm) diameter wire, must be fitted over the full windscreen aperture ONLY, and be securely fixed to the vehicle.
Note: There must be adequate clearance between the windscreen mesh and steering wheel to prevent injury to drivers' hand.
- 3.4 Perspex/Lexan/Clear Polycarbonate may be fitted on the outside of the mesh on the front screen **only**, providing that there is a suitable aperture cut in front of the driver's line of vision. The aperture must be at least 4" high, 12" wide, or the equivalent area within a 12" diameter.
- 3.5 Window Webbing/Net/Mesh.
It is the responsibility of all competitors to ensure that their arms are restrained from extending outside of their vehicle in the event of an accident or roll. This must be done by the use of either a permitted restraint or window net or by their seating position within their car (see also Rule 11).

If a arm restraint system is not used then a non-metal webbed/meshed net on the drivers door window aperture (Either wholly or partially), is mandatory and must be fitted. See Fig. 15.

If the driver's seating position within the vehicle is such that there is a risk of their arms extending out of either side of the vehicle then a window net must be fitted to both nearside and offside driver's compartment window apertures.

If an arm restraint system is used then the driver's compartment access window aperture(s) may also have a non-metal webbed/meshed net covering (Either wholly or partially).

Webbing/Mesh Type.

The window aperture webbed/meshed net covering must be of a NASA permitted proprietary brand and or construction. It must be fixed by quick release clips as supplied by the window webbing/meshed net manufacturer or be retained/fixed by the use of "R" clips ("Bolted with hinge" types prohibited) or 'Heavy duty' Velcro.

The window webbing **MUST** be easily and completely removable from both inside and outside of the vehicle either by the driver or marshals and or medical personnel.

The net mesh construction shall be of a mesh size of a minimum of 50mm up to a maximum of 100mm. The mounting or support bars may be of metal 6mm minimum and maximum 10mm circular section metal tubing. There shall be no sharp or pointed edges that may cause potential injury to driver or marshals in the event of deformation or breakage. See Fig. 15.

Note:

- When a "Window net" construction is inspected and is not to the satisfaction of a scrutineer and or designated official then it is deemed as being in contravention of the NASA vehicle construction rules and will not be eligible for use. Therefore if it is fitted to a vehicle it must be removed immediately. The competitor is not permitted to race until a compliant 'Restraint System' is used.
 - It is Competitors responsibility to contact a scrutineer and or designated official to confirm the particular 'Window net' form of construction is eligible. i.e. permitted by the NASA Scrutineers Committee **before** using it and or them.
 - "Window net" form of construction must be only as permitted by NASA. The types of construction will be subject to regular review by NASA to ensure suitability for Autograss racing.
NASA reserves the right to amend the permitted 'Window net' construction requirements at any time.
OMP & TRS & RJS Oblong and or Trapezoid (angular) full size window safety net permitted.
Full metal tube support bar/border and "gate opening" types prohibited.
- 3.6 Interior rear view mirror(s) allowed. It/they must not be of glass.

4 STEERING

- 4.1 It is a requirement that all vehicles are able to steer at all times. All-wheel and/or rear wheel steering prohibited. NASA reserves the right via an appointed Official and or Scrutineer to request that a competitor's vehicle undergoes a steering capability test.
Note.
Where the vehicle cannot perform or complete the steering capability test to the satisfaction of the designated official then it is deemed as being in contravention of the NASA vehicle construction rules and will not be eligible to race.

Reasons for the failure of a vehicle to pass the steering capability test will be given to the driver/competitor concerned who will be allowed to make adjustments etc, and present the vehicle for re-testing within the specified time period allocated at the event for the steering capability testing and or scrutineering of vehicles.

Refusal to comply with a request to take part in a steering capability test will immediately deem the vehicle as being in contravention of the NASA vehicle construction rules and make the competitor concerned subject to disciplinary action.

- 4.2 The steering system must remain as originally fitted to the vehicle make and model by the original vehicle manufacturer. Standard production original and replacement steering components only permitted. (See rule 4.3).
The steering column must be retained in its original position.
Power steering may be removed or retained.
Steering wheel lock and or locking devices are not allowed and must be removed.
- # It is not permitted to shorten nor lengthen the original standard production steering column.
- 4.3 The original standard production steering rack only may be removed and replaced with a proprietary "Quick" or "High ratio" steering rack.
The standard production original steering rack vehicle mountings must be retained in their original position and be appropriate to the vehicle make and model.
- 4.4 Safety Air Bag(s)
The use of Steering wheel mounted Safety Air Bag(s) is prohibited. Where they are fitted as a standard production item, they must be disconnected and removed. The disconnection & removal must be carried out in accordance with original vehicle manufacturer's guidelines and/or instructions & recommendations.
- 4.5 Steering Wheel.
The original standard production steering wheel may be retained or removed. If removed and replaced a full circumference steering wheel must be used – diameter free.
- # The steering wheel used must be fitted correctly. The fitting of a "reversed" or "upside down" (Steering wheel rotated 180 degrees front to back) steering wheel is prohibited.
Quick Release steering wheel boss permitted, provided the boss locates onto the steering column without affecting the original manufacturers steering wheel location. The boss must be fitted below the steering wheel.
Note.
It is the driver's responsibility to ensure that the steering wheel is secure at all times. Steering wheels may be subject to random spot checks of steering wheel fitment and or boss and or fixings whilst on the starting line.

5 SAFETY HARNESS

- 5.1 All vehicles must be fitted with a full harness seat belt to BSI standards (adjustable to securely fit driver) with one quick release buckle and a crutch strap and a minimum of 5 point fixing. The use of a 6 point fixing harness is recommended. The whole harness seat belt must be as supplied by the manufacturer of that harness seat belt and be fitted in accordance with the manufacturers recommendations.
Full aircraft type harnesses that incorporate a crutch strap are permitted. Inertia harness seat belt prohibited.
Note. The drivers seat must have the correct "Seat harness holes" to enable the choice of harness to be correctly fitted.
- 5.2 Shoulder Straps.
The shoulder straps of the harness seat belt must ideally pull back at an angle of between 45 degrees and straight back.
The safety harness shoulder straps must not be supported by the driver's seat associated shoulder/neck holes only.
The safety harness shoulder straps when the rear angle is less than or more than 45 degrees to the horizontal must have an additional supporting/fixing bar that must be fitted either between the two roll cage uprights or brace bars or across the inside between each side of the bodyshell provided Rule 5.5 ii is not contravened. (See Figs 6a, 6b & 7).
It is recommended that a harness "Strap guide" be fitted to ensure that the harness remains in position in the event of a roll over.
- # The shoulder straps must not be directly mounted to the vehicle bodyshell, it/they must be fitted to either the floor frame and or a safety harness fixing bar located either between the two roll cage uprights or brace bars or across the inside between each side of the bodyshell.
Note:
The harness shoulder straps must be a tight and correct fit on top of and over the driver's shoulders and elsewhere on the driver's body. This is a requirement to securely contain the driver within the seat in the event of a roll over. Therefore the stature of the driver and or drivers for shared vehicles, must be considered during harness and or mounting point choices.
- NASA reserves the right via an appointed Official and or Scrutineer to reject a safety harness and its fixings, and or require adjustments to be made particularly if the harness straps remain a "loose" fit when tightened.
- 5.3 Proprietary manufactured Safety Harness 'extension pieces' only permitted. No "Home made" extensions, rope, wire, chains, etc.
- 5.4 Attachment bolts for seat belts must be minimum 3/8" or 10mm high tensile steel.
- 5.5 Harness Fixing & Mounting Points.
The original manufacturer's seat belt fixing points or mountings, with the exception of the shoulder straps, may be used as safety harness fixing points or mountings.
Where the original seat belt fixing points or mountings are not used, safety harness fixing bolts or fixing rings/eyes must be adequately plated.
Note.
- i. Whilst racing or in the event of an accident the safety harness fixing points or mountings may be subject to severe stress/shock loading. This must be borne in mind during safety harness fixing point and mounting location choices. All safety harness fixing and mounting points must be sound and secure.
 - ii. Safety harness fixings must not be mounted on the vehicle rear parcel shelf or rear seat panel.
 - iii Attachment bolts for seat belts/safety harness must be minimum 3/8" or 10mm high tensile steel.

- 5.6 The safety harness fixing points may be mounted and fitted to either the floor frame and or a safety harness fixing bar located either between the two roll cage uprights or brace bars or across the inside between each side of the bodyshell. See Rule 5.2. (See Fig. 16.).

6 SEAT

6.1 Seat Type –Restricted.

All vehicles must be fitted with a driver's seat to securely hold the driver in place. The seat must incorporate a head restraint / headrest, a full-length backrest, left & right sides for thigh support and a bottom panel. Left & right rib supports may be fitted. All padding used must be securely fixed.

Seat material, type and design is free. See rule 6.2, & 6.3.

A proprietary manufactured "Car" or "Racing" or "Competition" or "Motor sport" car seat only must be used.

The seat must be installed in accordance with the particular seat manufacturer's recommendations and instructions and be in good order and or condition and be free of damage.

Whilst racing or in the event of an accident or roll over the seat may be subjected to severe shock and stress loading. This must be borne in mind during seat choices.

A steel seat support bar must be fitted, minimum size 25mm circular or box section, with minimum wall thickness 2.5mm, directly to the rear of the seat backrest.

The back of the seat must be fixed (Bolted/welded) to the seat support bar in two (2) places adjacent to the safety harness apertures.

The base of the seat must be fixed (Bolted/welded) to the vehicle chassis by means of a minimum of 4 fixings.

Note.

The use of a seat designed and manufactured for "Kart" racing is prohibited.

The use of a folding or hinging type seat is prohibited.

The seat must have the correct "Seat harness holes", adjustable as necessary to enable the choice of harness to suit the stature of the driver to be correctly fitted.

The seat head restraint/headrest must be an integral part of the driver's seat construction and be such that it provides a support for the driver's head, regardless of the stature of any driver and will prevent the driver's head from being violently jerked backwards during an impact thus reducing the potential risk of neck injuries.

- # Seat fixing bolt size 8mm HT or greater.

Whilst racing or in the event of an accident or roll over the seat may be subjected to severe shock and stress loading. This must be borne in mind during seat choices.

- 6.2 The seat must be adjustable for fit and location and harness location to securely hold the driver in place and to ensure correct control of the vehicle regardless of the stature of any driver.

6.3 Seat Mounting / Fixing.

The driver's seat or seat frame must be securely fixed (Bolted/welded/riveted) to the vehicle, back and front (See Fig. 14).

- # The mounting or fixing of a seat directly to sheet metal only is prohibited.

Where a proprietary seat is used it must be fitted in accordance with the particular manufacturer's recommendations.

- # Where a seat manufacturer's "mounting instructions" (e.g. Kirkey) does not recommend the use of "sliding seat fixings" and or "sliders" and or "seat adjustment" mechanism(s) then they are prohibited.

The seat, seat to seat frame or seat frame to vehicle support brackets must be located such that they cannot puncture or pass through the seat in the event of any impact. Non-proprietary and or "Home made non-steel types prohibited.

Note.

Where a seat manufacturer recommends that floor fixing only is required then additional fixings to the seat support bar are not required. (For such seats documentary evidence shall be provided by the competitor to the designated official upon request). However the support bar must be fitted.

Whilst racing or in the event of an accident or roll over the seat, seat frame, seat mounting brackets and fixings may be subjected to severe shock and stress loading. This must be borne in mind during seat and/or frame and mounting bracket choices.

- 6.4 NASA reserves the right via an appointed Official and or Scrutineer to reject a seat (Including mounting support frame/brackets), particularly "Thin", "Lightweight" or "Ultralight" types that are marketed as a "Race seat" but deemed as not fit for purpose and unsuitable for the shock and stress loadings of the "Autogross racing environment".

7 FIRE EXTINGUISHER

- 7.1 All competitors must be in possession of a fire extinguisher which is in good working order.

a) The extinguisher must be present while the vehicle is in the pits area and must be within easy reach of the driver and mechanics at all times, especially when refuelling.

b). It is optional for the extinguisher to be carried in the vehicle during racing. If the extinguisher is to be carried in the racing vehicle it must be securely fixed with the manufacturer's clamp and bracket. The use of secondary fixings to retain the extinguisher within its bracket is permitted, but the use of any fastening that requires a tool to remove the extinguisher is prohibited.

- 7.2 Extinguishers must be minimum 1 kg (2.2 lbs) dry powder or 0.9 litre foam spray AFFF or Zero 2000. The "use by" date must be current and the "stored pressure" indicator must be within the manufacturer's recommended limits. For extinguishers subject to regular inspection and service, a current record of inspection/test must be shown. All inspection and servicing must be carried out by a "competent person" in accordance with BS 5306 (current edition).

8 IDENTIFICATION

8.1 All vehicles must have the competitor's NASA registered/recognised Club letters and racing numbers, displayed (See Rule 8.5) on each side of the vehicle and on each side of a specified roof structure, at a point forward of the rear roll cage upright, to a minimum size of 230mm (9") in height, with a minimum 25mm (1") width. The Identification (Club letters & Racing number) must match that stated in the competitor's NASA Licence. i.e. If AA123 in Licence then it is AA123 Not 123AA or A123A on vehicle. (See Fig. 8).

8.2 It is the responsibility of the competitor to ensure that the identification letters and numbers of his/her race vehicle are displayed, clear, upright and legible at all times. Identification must be "Clean" and visible at the beginning of any particular race particularly during wet/inclement weather/track conditions.

Note.

The purpose of the vehicle identification requirement is to ensure that race lap scorers and officials can easily and correctly identify each vehicle from their race observation locations during any race. This must be borne in mind during identification font sizing and layout choices.

8.3 All NASA registered/recognised racing numbers, club letters and class numbers must be displayed the colour black on a white panel background. i.e. a background that is displayed so as to be the colour white. Iridescent or chameleon effect (Colour Change) Letters or Numbers or panels prohibited.

8.4 All NASA registered/recognised racing numbers, club letters and class number font is free however they must be sized so as to be proportioned such that they are clear and legible, and upright.

Note.

i. There must be a minimum of 50mm – Side Identification, 5mm – Roof Identification, clearance between the outside border and/or edge of the letter and/or number characters, regardless of font, and the outside border and/or edge of the white panel background

ii. There must be a minimum of 25mm between the club identification letters and race number grouping of characters. E.g. for AAC 123 there must be a minimum of 25mm between the character "C" and "1".

iii. The shading, blocking, outlining, overlapping, use of disproportionate sizing and/or leaning at an angle other than vertical of the letters and numbers is prohibited. (See Fig. 8).

Note.

The Lap Scorers and or appointed Officials wish to correctly identify each vehicle that is racing and or on track and also record the race results. It must be borne in mind during identification choices that NASA shall not be held responsible for the erroneous recording and or omission of any vehicle, regarding race results due to illegible identification.

NASA reserves the right via an appointed Official and or Scrutineer to reject identification deemed as not fit for purpose and unsuitable for official purposes.

8.5 Identification Sizes.

Vehicle Side.

A minimum size of 230mm (9") in height, with a minimum 25mm (1") width. (See Fig. 8).

Vehicle Roof.

A minimum size of 150mm (6") in height, with a minimum 12mm (1/2") width. (See Fig. 8).

Note. The roof display structure size must be appropriate for the size and type of font used.

8.6 Roof Display Structure

The stand up structure MUST be made of 0.71mm (0.028") (22 gauge) aluminium, to the dimensions shown on Fig. 9. The length being discretionary within the vehicle roof area.

Note. The roof display structure size must be appropriate for the size and type of font used.

8.7 The vehicle must have the NASA registered/recognised racing class identification number displayed upon the vehicle roof over both the nearside and offside driver's compartment access aperture to a maximum height of 50mm (2"), minimum 25mm (1").

8.8 Identification letters and numbers and panel background may be printed on self adhesive vinyl film to the colours and sizes specified.

8.9 The use of magnetic white panels and/or magnetic identification numbers and letters is prohibited.

8.10 Vehicle paint and decoration is free, however stickers, logos, decals, drawings, phrases etc; that may be considered, obscene, offensive or intimidating are prohibited.

9 ELECTRICAL / INSTRUMENTS

9.1 The original vehicle manufacturer's general wiring harness and the charging system (Dynamo/alternator etc.) may be removed or retained.

9.2 An ignition switch of proprietary manufacture must be fitted. It must be situated within reach of the vehicle driver when the driver is seated in the vehicle seat and in his/her normal driving position, with his/her safety harness fastened.

Note.

When an electrical fuel delivery pump is fitted, then the fuel pump must be wired through the ignition switch such that when ignition switch is turned off the pump must stop.

9.4 Isolation Switch.

A single electrical system and battery isolation switch of proprietary manufacture must be fitted in either the Positive (+) or the Negative (-) electrical "Live" or "Earth" circuit.

On operation of the battery isolator switch, the engine and electrical system must stop.

9.5 Battery Isolator Location – Restricted.

The battery isolator switch must be fitted on the offside of the vehicle, immediately in front of the windscreen on the scuttle. The switch "On/Off" positions must be clearly identified & displayed/painted a minimum size of 25mm (1") in height. (See Fig.10).

9.6 Battery Enclosure & Location – Restricted.

A battery must be secured within a metal enclosure box/container of sufficient strength not to burst open upon any impact and that is made as leak-proof as possible. Maximum wall thickness = 3mm. The enclosure box/container must be firmly secured to the vehicle.

Drivers Compartment.

- # The fitting of an electrical battery enclosure/box/container within the driver's compartment is permitted. However the battery enclosure/box/container must not be fitted beneath the driver's seat.

Vehicle Wings.

The enclosure box/container must not be fitted under the vehicle wings. i.e. No part of the enclosure shall be within and or beneath any part of any of the vehicle wings. Deformation of inner wings prohibited.

Limit of location – Vehicle Front.

The enclosure box/container must not be fitted anywhere on the vehicle at a point that is forward of an imaginary line, across the vehicle from the most forward part of the engine block and or gearbox and clutch housing casing.

9.7 Battery Type - Restricted.

A single 12 Volt battery electrical battery only must be used. Type and capacity free.

Note. Commercial and or agricultural vehicle battery prohibited.

The use of a "large" dimension size battery may be deemed as ballast and prohibited.

The suitability of the type of battery for use with or without a charging system and it's ability to hold a sufficient electrical charge for the duration of a race and any required race re-runs must be borne in mind during battery type choices. See Rule 9.8.

- 9.8 The standard production self-starting system may be retained or removed and replaced.

All vehicles must be fitted with a self starting system capable of starting the engine when operated.

- 9.9 Ignition leads coil and spark plugs free.

9.10 Brake Light.

A minimum of One (1) number Brake light, of 21 watts output and lens size 70mm x 70mm must be fitted to all vehicles.

The mandatory brake light to be mounted facing rearwards (Towards an imaginary marshal standing at the vehicle rear) at a point as near to the rear most point of the vehicle as practicable. It is permitted to fit a secondary brake light, mounted onto the offside roll cage upright facing outwards (Towards an imaginary marshal standing at the vehicle side). All brake lights must be covered with a red plastic lens and be clearly visible when in operation. "LED" lamps that emit a light that is the colour red of a minimum size 50mm x 50mm and that is clearly visible when in operation are permitted.

9.11 Instrumentation & Gauges.

All instrumentation and gauges must be securely fixed to the vehicle.

The use of an engine "Rev counter" and or "Speedometer" and their and tachometer associated drive mechanisms and or sensors permitted.

Original vehicle manufacturer standard production "Rev limiter" system may be retained or removed. If retained it must remain in the standard production location. The use of a single after-market engine "rev limiter" system consisting of a proprietary type 3 wire system only, being easily identifiable and mounted within the engine compartment adjacent to the electrical coil is permitted.

All other types of "Rev limiter" systems and mounting locations are prohibited.

The use of gear "Shift light" system(s) is prohibited.

10 FUEL

- 10.1 Pump fuel only to be used.

Proprietary manufactured petrol Lead & Octane Replacement and Anti-Wear Additives may be used.

Note. Millers Oils – VSP and CVL Fuel Additives are permitted. However their use must be in compliance with the particular manufacturers recommendations and instructions.

- 10.2 The use of N₂O injection is prohibited.

10.3 Fuel Pump.

The original vehicle manufacturers fitted fuel pump may be retained or removed.

Fuel pump and fuel regulator type and capacity free. See Rule 9.2.

10.4 Fuel Tank type – Restricted.

The original vehicle manufacturers fitted fuel tank must be removed.

A single non-spill proprietary metal fuel tank or NASA permitted proprietary "Fuel cell", with a maximum capacity of two (2) gallons (10 litres) and which is fitted with a secure filler cap including gasket or "O" ring seal must be fitted.

Fixings:

For a metal fuel tank the fixings must be such that the tank is secure. The use of non-metal fixing straps, wire, etc is prohibited.

For a "Fuel cell" the original fuel cell manufacturers "Fixing kit" only must be used and the "Fuel cell" must be secure.

- 10.5 The fuel filler pipe (And if fitted, the fuel delivery "Fuel shut-off" tap) must be fitted so as to be an integral part of the fuel tank or "Fuel cell".

10.6 Fuel Tank Location – Restricted.

- i. The fuel tank or “Fuel cell” and or fuel filler pipe and or filler cap, must not be fitted in the driver’s compartment and or under the vehicle wings and or anywhere on the vehicle at a point that is forward of an imaginary line, across the vehicle from the most forward part of the engine block and or gearbox and clutch housing casing.
- ii. Where a fuel filler pipe and or filler cap is located beneath or under a vehicle panel or bonnet or luggage compartment lid there must be clearance above the pipe and or cap to allow for panel etc; deformation in the event of a roll over.
- iii. If the fuel tank or “Fuel Cell” including filler cap is fitted within a totally enclosed space, then a 50mm diameter hole MUST be provided as near to the tank as possible in one accessible face of the enclosure, for accessibility of a fire extinguishant in the event of a fire.

10.7 There must be a metal fire shield between the driver and all fuel related components, including the fuel tank or “Fuel Cell” and filler cap.

10.8 The fuel tank or “Fuel cell” must have an external vent pipe fastened in a downward position, to a point below the floor of the vehicle. This vent pipe must not protrude into the fuel tank or “Fuel cell” more than 6mm (1/4"). It is recommended that a one way (non return) valve be fitted in the vent pipe.

Note:

Where a “Fuel cell” is used the vent pipe must be connected to the fuel cell by proprietary fittings and in a manner approved by the fuel cell manufacturer.

10.9 Fuel delivery pipes must be of metal or proprietary fuel flexible hose and be securely fixed.

Note:

Where a “Fuel Cell” is used the fuel delivery pipes must be connected to the “Fuel cell” by proprietary fittings and in a manner approved by the “Fuel cell” manufacturer.

11 COOLING SYSTEMS**11.1 Oil Cooler/radiator type – restricted.**

The fitting and use of a oil cooler radiator is permitted. If an oil cooler radiator is used it must be of a proprietary manufactured type only and be securely fixed such that it is within the vehicle engine compartment. Oil/water fluid to fluid cooler/heat exchanger prohibited.

11.2 Oil hoses must be of the correct oil resistant type with suitable high-pressure oil connections/fittings.

11.3 Oil tanks (Including catch tank) must be shielded from the driver in case of spillage in an accident. The oil tanks must not be fitted under the vehicle wings. and or anywhere on the vehicle at a point that is forward of an imaginary line, across the vehicle from the most forward part of the engine block and or gearbox and clutch housing casing.

11.4 Oil Sump.

Modifications to the oil sump and or oil pick up pipe may be carried out to prevent oil surge. “Dry sump”, “Accusump” oil reservoirs and or similar oil systems are prohibited.

11.5 Water pipes must be of metal or proprietary flexible hose. Type free.

11.6 Water radiators or header tanks must be fitted with a pressure cap and overflow pipe fastened in a downward position to a point below the floor of the vehicle.

11.7 When sealed radiator systems are used, they must be of an approved manufactured type, and be fitted with an approved pressure relief device, in good working order.

11.8 All radiators, expansion tanks and coolers must be fitted within the vehicle silhouette.

11.9 Radiators, expansion tanks, or any other cooling systems must be completely shielded from the driver.

11.10 Original manufacturer's heater/ventilation unit may be removed.

11.11 Radiator - Restricted.

Original standard production water cooling radiator may be retained or replaced. The use of an aftermarket and/or specialist fabricated radiator is permitted. Alloy and or composite metal & plastic radiator permitted. Radiator Size must be equal or similar to original vehicle manufacturer's capacity. Oversize radiators may be regarded as ballast and prohibited. Commercial vehicle radiator(s) prohibited.

11.12 Radiator Location – restricted.

The radiator may be moved from the original position and refitted elsewhere, but must be fitted within the vehicle silhouette.

11.13 Radiator Cooling Fan.

The original standard production cooling fan blade may be retained or removed and replaced. A electric cooling fan assembly may be fitted to the radiator.

For a standard production electric cooling fan assembly it may be retained or removed and replaced.

All electric fan assemblies must remain within the vehicle silhouette.

11.14 Water Pump.

Standard production original and replacement water pump only permitted. Modifications to water pump or pump pulley and/or impeller prohibited. The use of an additional or remote water pump is prohibited.

12 BRAKES

- 12.1 The standard production braking system must be retained and be in good working order.
- The braking system must be as listed in the T.S.D. Manual for the vehicle used. Where a vehicle is listed as having "Drum" brakes, then it is not permitted to fit "Disc" brakes and vice-versa.
 - The rear brake compensator may be removed.
 - The original standard production brake pipes and hoses may be replaced with aftermarket "Braided" brake hoses.
 - The practice of lightening brake discs/drums or other braking components by "Thinning" and or "Diameter reduction" and or "Grooving", "Slotting" or "Drilling" and or other machining is prohibited. See "Check sheet" for sizes and diameter of brake discs.
 - The practice of adjustment of drum brakes shoes to an absolute minimum setting, regardless of shoe thickness, to reduce friction is prohibited.
Brake shoes must be fitted and adjusted such that they operate correctly upon the brake drum on the initial depression of the foot brake pedal at all times.
- 12.2 Standard production original and replacement brakes and brake components only permitted.
- 12.3 All wheels must lock on grass (On application of the single foot brake pedal only) at all times. Anti-lock and/or ABS braking systems are prohibited.
- 12.4 The original vehicle handbrake and or parking brake, including the cable and its associated components may be removed or retained.
If retained the handbrake/parking brake components must remain as original manufacture and operate the rear wheel braking system only. The conversion of a cable system to hydraulic prohibited.
- 12.5 Brake proportioning - Restricted.
The fitting and use of a brake system proportioning "Brake Balance Bar" and or brake proportioning valve and associated adjustment mechanisms (including lever or knob) is prohibited.
The fitting of brake fluid shut off taps to completely isolate any part of the braking system is prohibited.
- 12.6 Brake warning light(s) must be activated by the depression of the foot brake pedal only. – See Rule 9.10.

13 WHEELS

- 13.1 A vehicle must have 4 wheels only.
- 13.2 All wheels must be in good order and or condition and be free of damage.
Modification of a proprietary manufactured wheel by "Thinning" and or "Diameter reduction" and or "Grooving", "Slotting" or "Drilling" and or other machining is prohibited.
The use of wheel adapters to fit non standard PCD wheels to the standard wheel hub and wheel fixings permitted. (See Rule 13.3 & 3.5).
- The use of wheel spacers and/or combined wheel spacer and wheel adapter permitted. (See Rule 13.4).
 - The use of different wheel diameter sizes on the offside and nearside of the vehicle is prohibited.
 - "Wire wheels" and/or "Twin wheels" are prohibited.
 - "Beadlock" and /or Beadlock type wheels are prohibited.
 - The use of hub caps and or dust/mud shield and any attachments prohibited.
 - Wheels must have a single tyre inflation valve orifice in its standard production location.
 - The wheels must be suitable for the tyres used.
 - For FWD vehicles only.
Type and width are restricted. (See Rules 13.2 and 13.3). The diameter is restricted to a minimum of 12 inches and a maximum of 14 inches.
 - For RWD vehicles only.
Type, width and diameter is restricted. (See ii, iii, iv, & v.).
Maximum permitted wheel diameter is 17".
- 13.3 Wheel fixings – Type Restricted.
- Wheel centres must only be fitted to hubs the correct way.
 - Wheel studs and nut fixings only permitted.
 - The wheel nut must be completely penetrated and threaded by the wheel stud.
 - The correct number and size of studs and nuts must be fitted for all the wheels used.
Wheel nuts must be used to match the nut taper and stud bore and depth of the particular wheel (including spacer if used) concerned.
 - Locking wheel nuts/bolts prohibited.
 - All studs must be of a one-piece type.
 - Single nut and/or stud and/or centre lock wheel fixings prohibited.
 - "Half nuts" and/or non-steel nuts prohibited.
 - "Plated" wheel studs prohibited.
- 13.4 Wheel Spacers – Type restricted.
- #
- The fitting of wheel spacers is permitted. – Maximum thickness = 3mm.
 - A wheel spacer must be of proprietary manufacture, be of solid one piece that incorporates an integral backing plate.
Whilst racing, a wheel spacer may be subject to severe shock and stress loading. Wheel spacer type and construction and fixings must be suitable and fit for purpose for the shock and stress loadings of the "Autograce racing environment". This must be borne in mind during spacer choices
Note.
The use of hollow spacers and or those requiring "Extension studs" are prohibited.
 - The alteration of or "thinning" or "machining" of proprietary wheel spacers is prohibited.
 - The spacer must be of uniform width and diameter.
 - The associated wheel studs must be of a one-piece type and of correct size. "Extension studs" prohibited.

NASA reserves the right via an appointed Official and or Scrutineer to reject a spacer, deemed as not fit for purpose and unsuitable for the shock and stress loadings of the "Autograss racing environment".

13.5 Wheel Adaptors.

- # For all vehicles the use and or fitment of wheel adaptors to fit wheels of a different PCD from standard is not permitted. The use of a combined wheel spacer and wheel adapter is prohibited.

14 TYRES

14.1 Tyres are restricted.

For "drive axles" and/or "drive wheels" Control Tyres will apply. The application of control Tyres will remain effective until 31 December 2018. NASA reserve the right to modify these regulations without notice at any time

There are 3 options. "A" and "B" and "Wet Weather".

A competitor may use tyres on that comply with either option on a "Drive axle". Mixing & matching of Option "A" and Option "B" and or "Wet Weather" tyres on the same drive axle is permitted.

- i. All tyre identification markings must be present and visible on each of the tyre sidewalls. Removal of identification markings is not permitted. The hardness value must be marked upon all Option "A" tyres. Such marking is to be clearly visible, non removable and applied during the tyre manufacturing process. Sticky labels applied by the retailer or "Branding iron" markings are not acceptable. Tyres that are not marked with hardness value will be deemed as Option "B" Tyres and then must comply with Option "B" rules.
- ii. The tread block/pattern/profile must be pre-formed. i.e. made during the original manufacturing process.

Note.

Alteration or modification to original manufacturer's tread pattern by "Tyre cutting" is not allowed.

- iii. All tyres whether Control Tyres or other, must have a speed rating of a minimum of 75 mph ("L" speed symbol). "Town and Country", and "M & S" (Mud & Snow) tyres are permitted subject to drive & non drive axles and Control Tyre restrictions. Motorbike and/or Motorcycle tyres prohibited.
- iv. All tyres must be fitted to the wheel correctly and be in good condition. i.e. Be within wheel rim and or be free of damage to main tread pattern and sidewalls, including cuts, bulges, tears, rips, loose and or separated tread.
- v. Tyre Hardness - Restricted.
Tyre hardness must comply with the following. Random checks of hardness will be carried out by means of a Durometer.
For non-Control Tyres the shore hardness is free.
Control Tyres Option "A" must have a absolute minimum shore hardness of 60. when measured at a nominal temperature of 20 deg C. (There is a tolerance of -5 shore hardness to allow for manufacturing variance. The absolute limit is 55).
Control Tyres Option "B" must have an absolute minimum shore hardness of 55. when measured at a nominal temperature of 20 deg C.
- vi. Tyre Width - Restricted.
Maximum permitted tyre width is 225.

14.2 Tyre Option Description & Application.

i. Drive Axles

For "Drive Axles" Control tyres will apply. There are 2 choices of tyre - Option "A" and or Option "B".

A competitor may use tyres on that comply with either option on a "Drive axle". Mixing & matching of Option "A" and Option "B" tyres on the same drive axle is permitted.

Option "A" Tyres

Tyres must be of a type supplied by a manufacturer/supplier as shown on the NASA permitted list of suppliers only. (The current NASA permitted suppliers are: Maxsport Competition Tyres, Sportway Tyres, Kinsley, & Liam Evans Tyres).

N.B. The tyre tread pattern must be of a type as permitted by NASA.

Option "B" Tyres.

Tyres must be an "E" marked Car road going "New" or "Remould" tyres that are permitted in law for road use only. available from any regular UK tyre distributor or Internet seller. They must have a shore hardness rating of a minimum of 55. The cost of the tyre must be such that it has, or has had an initial sales value inclusive of VAT of less than £60. Tyres must also comply with Rule 14.3.

NASA will maintain a register of approved Option "B" tyre makes/patterns. Tyre not on the approved listing are prohibited.

Where any "Option B" tyre is found to be below the stipulated hardness, the user will be reported for disciplinary action. The fact that an "Option B" tyre is on the approved list maintained by NASA does not mean that NASA agrees that all tyres of that make/pattern will necessarily conform to their hardness requirements. The responsibility lies with the competitor to ensure his "Option B" tyres comply with the NASA minimum hardness requirements.

Wet Weather Tyres.

Wet weather tyres are listed separately by NASA are exempt from hardness control.

Wet Weather tyres may be fitted to any axle/wheel.

Wet Weather tyres must also comply with Rule 14.3.

Examples of permitted Wet Weather Tyre patterns are:

Maxsport: *RB 1, RB 3, Hakka II+, Hakka.*

Sportway: *AT1, AT2, Rallygrip, Ultragrippa.*

ii. Non-Drive Axles.

Tyres fitted to **non-drive axles** must be:

Either: Car road going tyres that are permitted in law for road use only

Or: Control Tyres Option "A", "B" or "Wet weather tyres".

Tyres must also comply with Rule 14.3.

iii. Pre January 2012 Tyres.

Tyres in use prior to January 2012, currently in circulation and not marked "60" but of a pattern previously sold by an "Option A" seller will be deemed to be "Option B" and come under the "Option B" regulation making the user responsible for their hardness.

14.3 Eligibility

- a). When a tyre is inspected and is not to the satisfaction of a scrutineer and or designated official then it is deemed as being in contravention of the NASA vehicle construction rules and will not be eligible for use.
- b). It is Competitors responsibility to contact a scrutineer and or designated official to confirm that tyres are eligible. i.e. permitted by the NASA Scrutineers Committee **before** using them.
- c). Tyres tread patterns must be only as permitted by NASA. Tyre tread patterns will be subject to regular review by NASA to ensure suitability for Autograss racing. (See d). iii.). NASA reserves the right to amend the permitted tyre tread pattern requirements at any time.
- d). The following tyres are not permitted:
 - i. Option "A" Tyres sourced from a supplier not on the NASA permitted supplier list.
 - ii. Option "B" and or "Wet Weather" Tyres not on the NASA permitted tyre list.
 - iii. Tyres with an aggressive tread pattern. i.e. As a "Rule of Thumb" the "Tread Block" must be greater than the gap between the individual tread blocks.
 - iv. Tyres fitted with studs and/or attachments.
 - v. Implement. Industrial, Horticultural and or Agricultural tyres.
 - vi. "Hand-cut" tyres.
 - vii. Barum, Monarch Bartrack, Bridgestone Potenza RE39 R or 606, Yokohama MT14, Hoosier tyres
- e). Any tyre manufacturer wishing to introduce a new size and or pattern for use in Autograss Racing must contact the NASA Scrutineers Committee for permission.
Patterns and Sizes must have been originally available at 30th September of the preceding year and as per the manufacturers submitted lists.
- f). NASA reserves that right to trial tyres at any time - of any type from any supplier and will dictate at the time if any car using a trial tyre may be included within race results.
- g) NASA reserve the right to consider and or appoint additional suppliers of "Option A" tyres at any time – Subject to them meeting the NASA Tyre criteria.

14.4 Tyres may be fitted with inner tubes. The placing of liquid into a tyre or inner tube is prohibited.

14.5 The use of any substance to enhance or improve the adhesion and/or softness & hardness properties of tyres is prohibited.

15 EXHAUST

15.1 Exhaust manifold and system are free. Catalytic Converters where they are fitted as a standard production item may be retained or removed.

Note.

Any device(s) that acts as a valve and or regulator, whether adjustable or not, upon the exhaust gas flow within the exhaust system is/are prohibited.

15.2 All vehicles must be fitted with an efficient silencer capable of reducing the noise level to within the NASA specified noise limit 102 Db (A). For method of noise level measurement see SILENCING.

a). It is the competitor's responsibility to:

- i). Ensure that his/her vehicle complies with sound testing regulations and it is recommended that competitors make themselves aware of any additional regulations imposed by clubs which they may visit before attending.
- ii). Ensure that his/her vehicle is constructed such that noise testing may be readily and easily carried out.
- iii). Familiarise themselves with the NASA Noise Test Chart showing the different engine r.p.m. test levels for different types of engines.

b). Test Engine RPM.

The noise test engine r.p.m. shall be notified by NASA to each affiliated club's Chief Scrutineer by means of a list showing the different levels for different types of engines cc. NASA reserves the right to amend and or revise the engine test r.p.m. at any time.

Note.

- i. A vehicle considered noisy by any official during racing may be disqualified notwithstanding that they may have passed the initial static test.
- ii Where a silencer's performance is found to be insufficient to comply with the above, the use of any temporary modifications, including inserting drink's cans, extra wire wool etc., into the silencer outlet pipe etc; is prohibited.
- iii. For further detailed information see also Members Handbook – SECTION – SILENCING.

15.2 The engine exhaust system outlet must end at the rear bodyline of the vehicle, and not protrude beyond 50mm of the vehicle bodyline. The outlet must be at a point that is easily accessible for the taking of noise level test measurement readings.

It is recommended that the outlet end be at a point between the rear of the "B" pillar and the rear of the vehicle.

Note:

The outlet pipe must exit the vehicle at a height not more than 2'9" (33") (838mm) from ground level, and point either horizontally or downward at an angle of not more than 30° from the horizontal.

- 15.4 Exhaust pipes, when fitted inside the driver's compartment, must be covered with material sufficient to act as a safety shield.
- 15.5 A hole may be cut into the external bodywork of the vehicle to allow the exhaust pipe to exit, the hole size is limited to 1" (25mm) clearance around the single exhaust pipe or around the total diameter of multiple exhaust pipes (Not 1" around each pipe). Where multiple exhaust pipes are fitted if they exit through the bodywork they must do so at a single point. Exhaust pipe(s), which may be regarded as being of excessive diameter, are prohibited.

16 SAFETY SHIELDS

- 16.1 All vehicles must be fitted with a metal fire shield that completely protects the driver from the engine unit.
- 16.2 Transverse mounted, rear engined saloons must have safety shield, minimum 4" wide, ¼" thick steel plate, 18" high, in line with the flywheel, between the engine and the driver.
- 16.3 Sump Guard – Restricted
A sump guards is permitted. Material of guard must be metal.
Sump guard thickness maximum: Steel = 3mm. Alloy = 5mm.

Guard Shape/Dimensions - Restricted.

Plan area: Absolute minimum necessary to protect the engine/gearbox oil sump pan only.

There shall be no vertical surface extending above the base of the vehicle chassis or front sub frame.

The sump guard area shall not be extended to incorporate suspension system and/or suspension component mounting and or mounting protection.

Note. For rear engined vehicles:

There shall be no vertical surface extending above the base of the vehicle chassis or the rear sub frame. The sump guard may be extended to provide gearbox protection.

- 16.4 Oil, water and fuel pipes, when fitted inside the driver's compartment, must be secure, completely encased in a suitable material and of continuous length, from the point it enters to the point it leaves the driver's compartment. The material must be of sufficient strength to act as a mechanical protection.

17 SUSPENSION

- 17.1 Suspension type is restricted.
The suspension system must remain as originally fitted to the vehicle make and model by the original vehicle manufacturer.
Active /Adaptive/ semi-Active Suspension prohibited.

Camber & Castor.

The Camber and Castor angles must remain as stated in Palgrave/Glasses Guide Technical Services Data Sheet for the vehicle. Modification of suspension components, suspension leg and or hub to suspension leg mounting brackets prohibited.

Note.

Slight deviation only from standard as a result of race track conditions are acceptable. Excessive deviation of the Camber angle from standard prohibited.

NASA reserves the right via an appointed Official and or Scrutineer to inspect and or subject the suspension to measurement for compliance with the regulations. NASA reserves the right to designate the information reference source and the method of component checking.

- 17.2 All bodysell suspension system component mountings must be retained in their original positions and be appropriate to that vehicle make and model.
- 17.3 The practice of heating and bending leaf springs is prohibited.
- 17.4 Suspension components. – Restricted.
The original suspension bushes, bump stops, shock absorbers, suspension leg/struts, front and rear springs (Coil/leaf), torsion bars, may be retained or replaced with uprated and/or adjustable units. Suspension leg/struts may also be fitted with a metal "Wedge" to minimise bending. The use of front suspension height adjustable spring platforms is permitted. Maximum height of metal wedge 100mm. (Fig. 14).
Note:
a. 'Remote Reservoir' & 'Piggy-back Reservoir' type dampers, and/or shock absorbers and/or inserts and/or suspension leg/struts are prohibited.
b. The use of "Roller Top" or "Spherical Bearing" Concentric or Eccentric or Two Piece type or "Solid" suspension leg/strut Top Mounts or Mountings is prohibited.
c. The use of any other mechanical device to alter the suspension geometry is prohibited.
- # **From January 2019 the type, size and or manufacturer of permitted "uprated" suspension systems will be restricted.**
- 17.5 Anti tramp bars and pan-hard rods are allowed only where fitted as original vehicle manufacturer's standard production equipment.
- 17.6 A "Strut Brace" may be fitted between the engine compartment suspension turret housings.

- 17.7 For vehicles fitted with rear leaf springs, a proprietary lowering block, with parallel top and bottom surfaces, complete with approved fixing brackets, may be inserted between the bottom of the rear axle and the top of the leaf spring on the nearside and offside of the axle and must be fitted according to the manufacturers instructions.
- 17.8 Wheel Hubs.
Wheel Hubs shall be retained in their standard production location and shall remain in their standard production form. Standard production originals and NASA Scrutineers Committee permitted replacement wheel hub components only must be used.
Devices which alter the mounting angle of the rear axle and/or rear hub assembly from the standard production settings are prohibited.

18 PROTECTION

- 18.1 Front and/or Side Protection/Reinforcement.
No internal or external protection or reinforcement is allowed on the front or side of vehicles other than Distributor protection as described in Rule 18.4.
- 18.2 Rear Protection
Restricted to one 1" x 1" (25mm x 25mm) box fitted inside the rear panel, or bolted flush to the outside of the panel. The width to be not more than to the centre line of the rear wheels. (See Fig.11).
Note.
a). No more than 2 brace bars of maximum size 1" x 1" (25mm x 25mm) box may be used to support the protection bar. (See Fig. 11).
b). The support bars, (If fitted) must be connected to the rear boot floor only.
c). Where the protection bar(s) are fixed to the outside of the rear panel, the support bars may pass through the rear panel.
d). Protection bar(s) and support bars must not be connected to the roll cage or any brace bar(s).
e). The protection bar(s) must not be connected to the vehicle rear wheel arches.
- 18.3 For Rear engined vehicles local rear gearbox and rear engine ancillary protection is permitted and must comply with Rule 18.2.
- 18.4 Distributor Protection
Front transverse engined vehicles only. Restricted to local distributor area. One 1" x 1" (25mm x 25mm) box section maximum, top bolted to engine, bottom to sub-frame/lower chassis/engine cradle member.

19 VEHICLE CHECK SHEET – CLASS 2.

NASA reserves the right to designate the information reference source and the method of component checking.

Note.

The 'Vehicle Check Sheet' data and other designated information source will be used in conjunction with the particular vehicle Palgrave / Glasses Guide Technical Services Data Sheet as a reference when checking the eligibility and legality of the vehicle and or any of its components.

VAUXHALL NOVAPermitted BodysHELLs

Nova 2 or 4 door Saloon.

Nova 3 or 5 door Hatchback.

Permitted Gearbox

Vauxhall F10/4 WR & F10/5 WR gearbox only.

Gear	Input gear Teeth	Output Gear Teeth	Ratio
1	11	39	3.55 : 1
2	23	45	1.96 : 1
3	33	43	1.30 : 1
4	37	33	0.89 : 1
5	37	29	0.71 : 1
Reverse			3.31 : 1

Vauxhall F10/4 CR & F10/5 CR gearbox.

Gear	Lay gear Teeth	Output Gear Teeth	Ratio
1	11	39	3.55 : 1
2	21	45	2.14 : 1
3	21	30	1.43 : 1
4	33	37	1.12 : 1
5	33	29	0.89 : 1
Reverse			3.31 : 1

Either gearbox may be used in either permitted bodysHELL.

All other Vauxhall gearboxes are prohibited.

Note.

For scrutineering purposes the gearbox must be complete with the correct Vauxhall "F10" casting and or part number identification upon the casing.

It is not permitted to:

- i. Use a gearbox without the casting and or part number identification.
- ii. Use a "Corsa" gearbox in a "Nova" BodysHELL.
- iii. Use a "Corsa" gearbox in conjunction with a "Nova" engine in a "Corsa" BodysHELL.
- iv. Change a gear cluster from "standard". i.e.
 - a). Fit a gear cluster or any gear from a non F10 gearbox into a F10 gearbox.
 - b). "Manufacture" a gearbox gear cluster using OE standard components to produce a unit with non-OE "Standard" gear ratios or "Gears". i.e. Mix up WR or CR ratios into a single gearbox. E.g. Fit a CR 2nd gear into a WR gearbox or vies-versa.

Permitted Differentials.

Differential:	3.74	or	3.94	or	4.18
Final drive Teeth	19		18		17
Output Teeth	71		71		71

Either differential may be used in either permitted gearbox & bodysHELL.

Permitted Engine

1196cc – 12ST or 12SC or 12S Vauxhall Manufacture.

1297cc – 13SB or 13SC or 13S Vauxhall Manufacture.

Either engine may be used in either permitted bodysHELL.

Permitted Cylinder Head – Restricted.

The cylinder head must be of Vauxhall manufacture.

The following are permitted for use on a Vauxhall Nova engine:

Astra cylinder head. Cavalier cylinder head. Opel cylinder head.

Valve sizes must be as listed under "Valve head diameter".

It is not permitted to use a 1196cc engine cylinder head on a 1297cc engine and vies-versa.

Cylinder Head Thickness.

Absolute minimum cylinder head thickness = 94mm.

Cylinder Head Valve Insert Depth and Throat Internal Diameter.

The depth of the valve insert must be not greater than 6mm.

The diameter of the valve insert internal throat must be no greater than: Inlet = 30mm. Exhaust = 25.5mm.

Cam Lift.

1196cc	12ST	12SC
	Inlet = 5.1mm	Inlet = 6.45mm
	Exhaust = 5.6mm	Exhaust = 6.45mm

1297cc 13 & 13SB & 13SC & 13S
 Inlet = 6.0mm
 Exhaust = 6.0mm

Valve Timing.

1196cc 12ST & 12SC
 19 BT-51AB-59BB-22AT

1297cc 13SB & 13SC & 13S
 24 BT-78AB-68BB-36AT

Valve Head Diameter.

1196cc 12ST & 12SC
 Inlet = 33mm. Exhaust = 29mm.

1297cc 13 & 13SB & 13SC & 13S
 Inlet = 33mm. Exhaust = 29mm.

Pistons.

A maximum of + 0.040" (1.0mm) oversize bore is allowed.

The oversize bore or re-bore is on the manufacturers original engine size, as fitted to the make or model of the vehicle, and not on the class cubic capacity limit.

Standard production replacement pistons **ONLY** permitted.

Note.

- i. Where a standard production replacement piston is not available in the specified maximum stated permitted overbore sizes then, it is NOT permitted to engage specialist piston manufacturers to produce a piston to such a size or modify non standard replacement pistons to fit.
- ii For the Vauxhall Nova.
 Pistons may protrude above the cylinder block top face – Absolute maximum permitted = 0.254mm (0.010").

Permitted Distributor.

1196cc – 12ST or 12SC or 12S.

Vauxhall standard production and/or standard production replacement.

1297cc – 13 or 13SB or 13SC or 13S.

Vauxhall standard production and/or standard production replacement.

Brakes.

Front Brake Disc:- Vauxhall Nova standard production diameter = 236mm.

Front Brake Disc:- Vauxhall Nova standard production thickness = 10.0mm Maximum. 8.0mm Minimum.

Suspension.

Front Wheel Camber = -0° 15' / 0° 45' Max.

Rear Wheel Camber = -0° / 1° Max.

Wheelbase.

2343mm (92.2").

VAUXHALL CORSAPermitted Bodyshells

Corso 3 or 5 door Hatchback.

1993 – 2000 SOHC engine models.

Models excluded - "New Corsa 2000 onwards.

Permitted Engine, Cylinder Head & Gearbox & Differential.

Must be as the Vauxhall Nova check sheet specification.

Brakes.

Front Brake Disc:- Vauxhall Corsa standard production diameter = 236mm.

Front Brake Disc:- Vauxhall Corsa standard production thickness = 12.7mm Maximum. 9.7mm Minimum.

Suspension.

Front Wheel Camber = -0° 15' / 0° 45' Max.

Rear Wheel Camber = -1° / 1° Max.

Wheelbase.

2443mm (96.2").

NISSAN MICRAPermitted BodysHELLs.

Micra 3 or 5 door Hatchback Saloon.

Permitted Engine.

988cc – MA10 Nissan Manufacture.

1235cc – MA12 Nissan Manufacture.

Cylinder Head Thickness

Absolute minimum cylinder head thickness = 110.5mm.

Cylinder Head Valve Insert Depth and Throat Internal Diameter.

The depth of the valve insert must be not greater than 6mm.

The diameter of the valve insert internal throat must be no greater than:

Inlet = 30mm. Exhaust = 27mm.

Camshaft Type.

1235cc = T5 or T1

Valve Timing.

988cc 11 BT-45AB-51BB-07AT

1235cc 04 BT-48AB-48BB-04AT

07 BT-45AB-51BB-01AT

Cam Height.

988cc Intake 33.77 – 34.02mm.

Exhaust 33.73 – 33.98mm.

1235cc Intake 33.98 – 34.23mm.

Exhaust 33.94 – 34.19mm.

Valve Spring Free Length.

Maximum = 43mm.

Pistons.

A maximum of + 0.020" (0.5mm) oversize bore is allowed.

The oversize bore or rebore is on the manufacturers original engine size, as fitted to the make or model of the vehicle, and not on the class cubic capacity limit.

It is not permitted to increase the cc of a 988cc or 1235cc engine to 1300cc.

Standard production replacement pistons **ONLY** permitted.

Note.

- i. Where a standard production replacement piston is not available in the specified maximum stated permitted overbore sizes then, it is NOT permitted to engage specialist piston manufacturers to produce a piston to such a size or modify non standard replacement pistons to fit.
- ii. Pistons may protrude above the cylinder block top face – Absolute maximum permitted = 0.254mm (0.010").

Flywheel.

Check that correct item for engine cc is fitted.

Flywheel reference.

988cc = 01B

1235cc = 05B

Permitted Gearbox.

4 Speed – RN4F40A

5 Speed – RS5F41A

All other Nissan gearboxes are prohibited.

Gear	Input gear Teeth	Output Gear Teeth	Ratio
1	17	58	3.412 : 1
2	24	47	1.958 : 1
3	31	39	1.323 : 1
4	38	35	1.028 : 1
5			0.851 : 1
Reverse			3.385 : 1

Permitted Differentials.

Differential: 3.591 or 3.731 or 3.81 or 4.050

Final drive Teeth 22 19 20

Output Teeth 79 71 81

Either differential may be used in either permitted gearbox & bodysHELL.

Permitted Distributor.

Nissan standard production and/or standard production replacement.

Brakes.

Front Brake Disc Diameter:-

Nissan Micra standard production diameter = 214mm.

Front Brake Disc Thickness:-

Nissan Micra standard production thickness

= 12.0mm Maximum. 10.0mm Minimum.

Suspension.

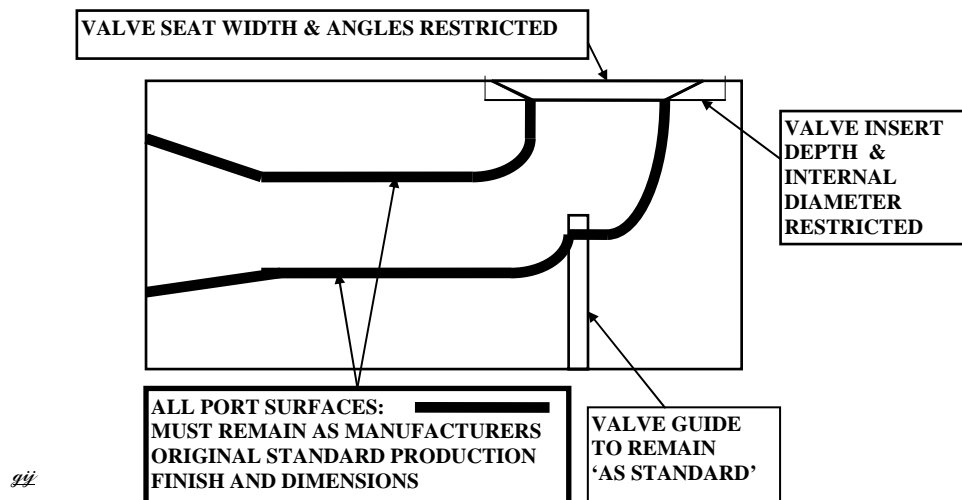
Front Wheel Camber = $-0^{\circ} 25'$ / $1^{\circ} 5'$ Max.

Wheelbase.

2300mm (90.6").

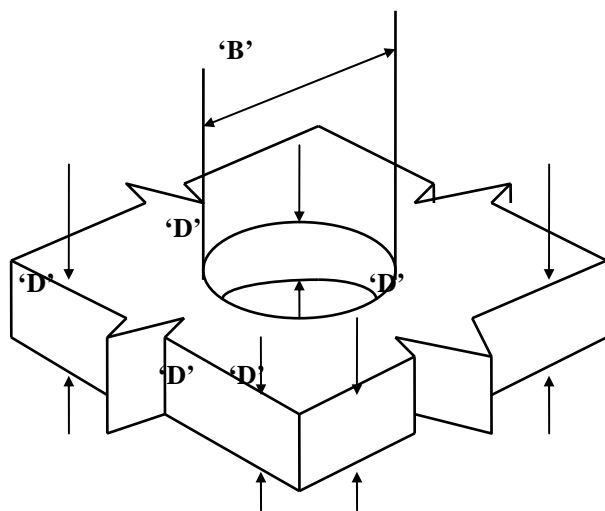
NASA RULE BOOKS DRAWINGS – CLASS 2

DRAWING 1 CLASS 2 - CYLINDER HEAD INLET & EXHAUST PORTS



The surfaces of the combustion chamber and inlet port must remain as produced by the original vehicle manufacturer. i.e. "Rough as cast"
 Polishing and or Machining and or Grinding and or Reshaping of surfaces is prohibited.
 Valve insert must not protrude above head surface - See Check sheet for maximum depth & internal diameter.

DRAWING 2 – CLASS 2 – RESTRICTOR PLATE

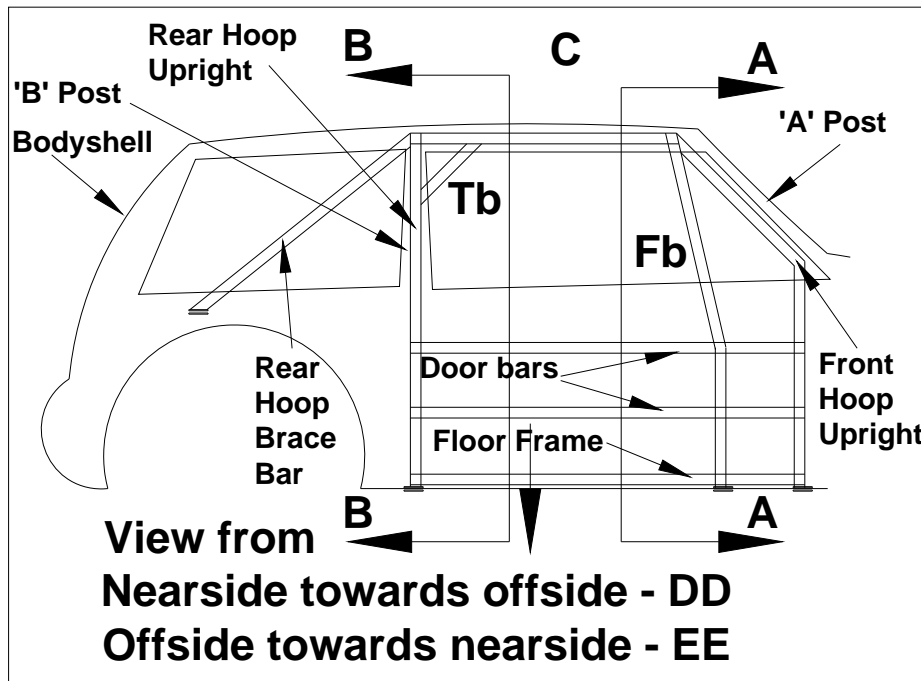


**DEPTH/THICKNESS 'D' MINIMUM = 4mm
 MAXIMUM = 10mm
 RESTRICTOR PLATE MUST BE OF A CONSTANT UNIFORM THICKNESS**

**BORE DIAMETER 'B' MAXIMUM = 32mm
 THE HOLE SIDES MUST BE PARALLEL.**

Figure 1a Roll Cage – Side Elevation

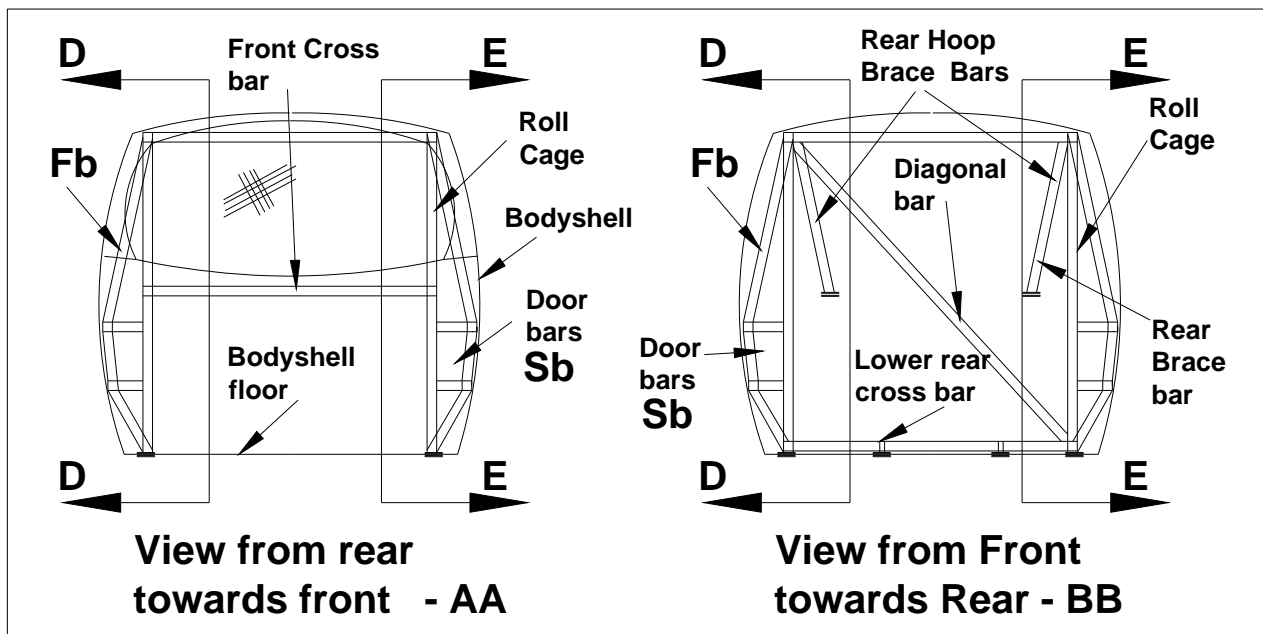
All Bars - Minimum sizes and specified wall thickness as Rule 11.
 Bar Tb is mandatory.
 Bar Fb is optional.



gii

Figure 1b Roll Cage - Front & Rear view

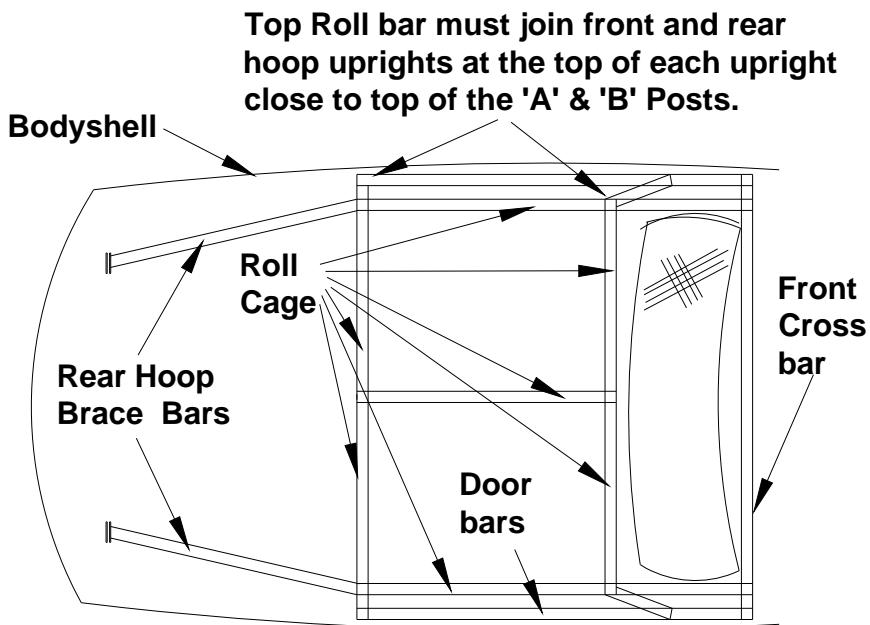
All Bars - Minimum sizes and specified wall thickness as Rule 11.
 Bar Fb is optional.



gii

Figure 1c Roll Cage - Plan View – Centre Bar

All Bars - Minimum sizes and specified wall thickness as Rule 11.

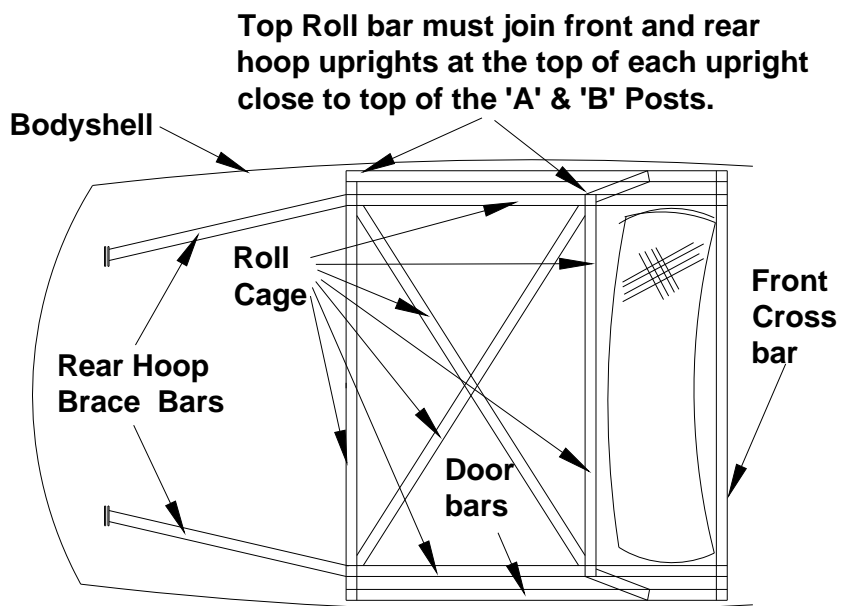


View from above - C

gij

Figure 1d Roll Cage - Plan View – Cross bars

All Bars - Minimum sizes and specified wall thickness as Rule 11.

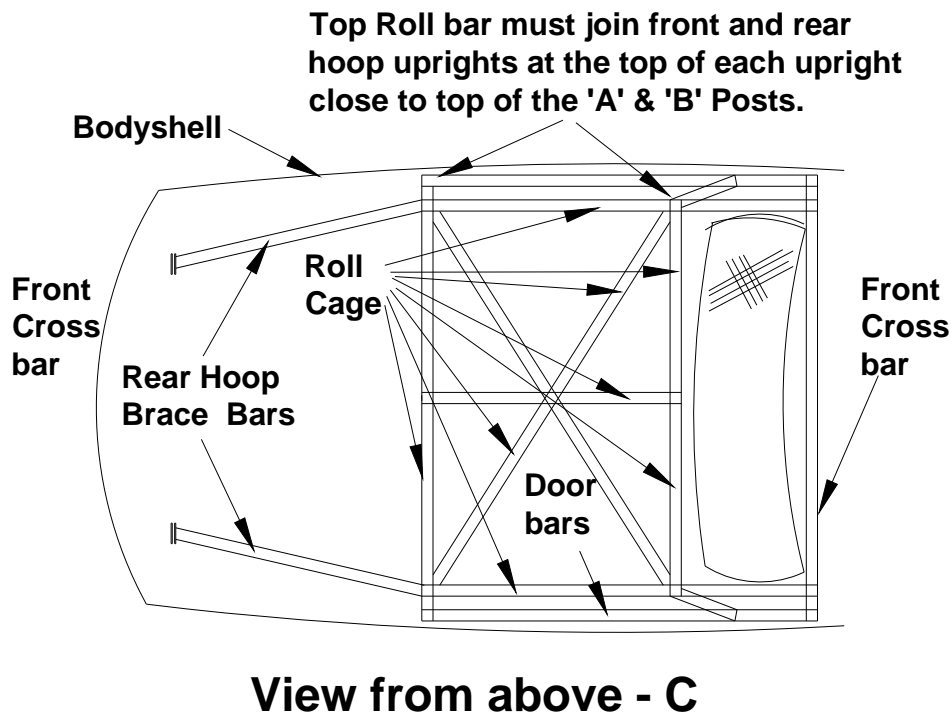


View from above - C

gij

Figure 1e Roll Cage - Plan View Centre & Cross Bars Combined

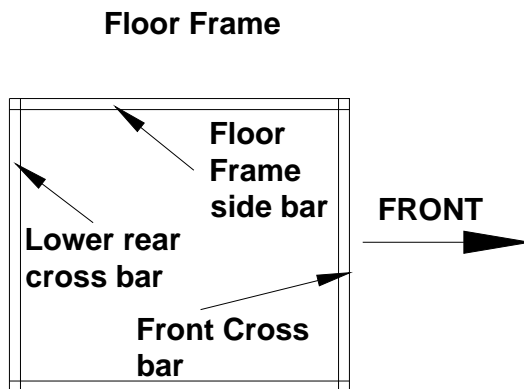
All Bars - Minimum sizes and specified wall thickness as Rule 11.



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Figure 1f Floor Frame

All Bars - Minimum sizes and specified wall thickness as Rule 11 & 16.

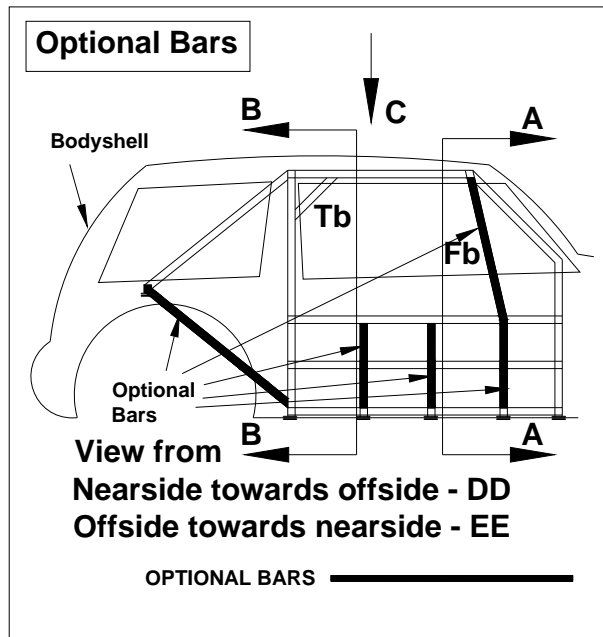


**Plan View of
Floor Frame
From above - C**

99

Figure 1g Roll Cage Optional Bars – Side elevation

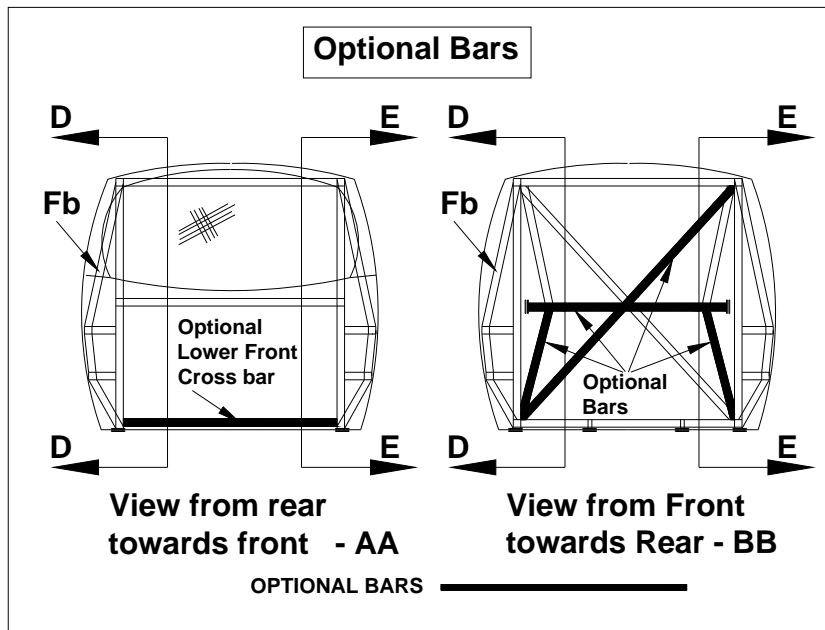
All Bars - Minimum sizes and specified wall thickness as Rule 11.
 Bar Tb is mandatory.



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Figure 1h Roll Cage Optional Bars – Rear & Front View

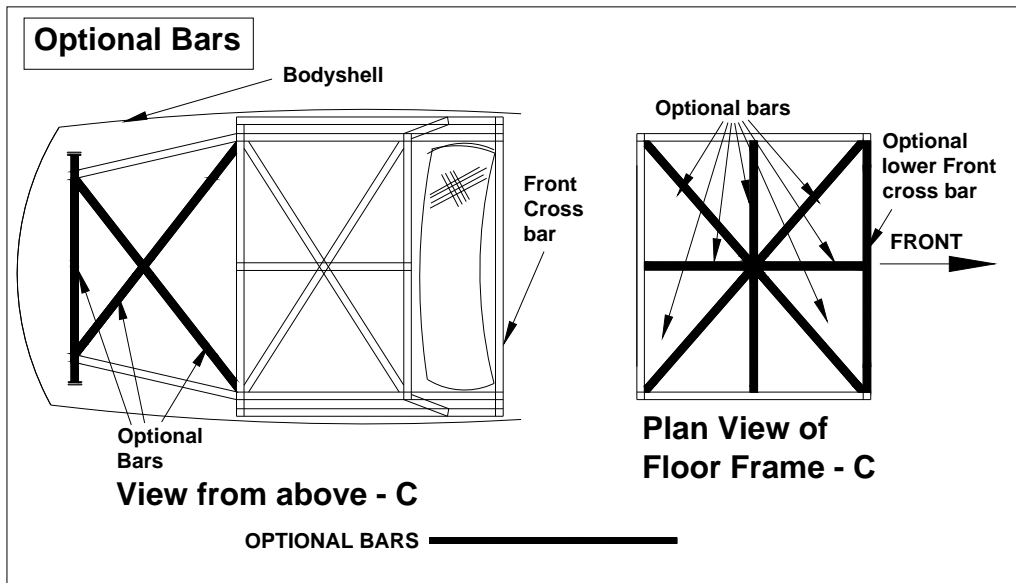
All Bars - Minimum sizes and specified wall thickness as Rule 11.
 Bar Tb is mandatory.



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Figure 1i Roll Cage Optional Bars - Plan view

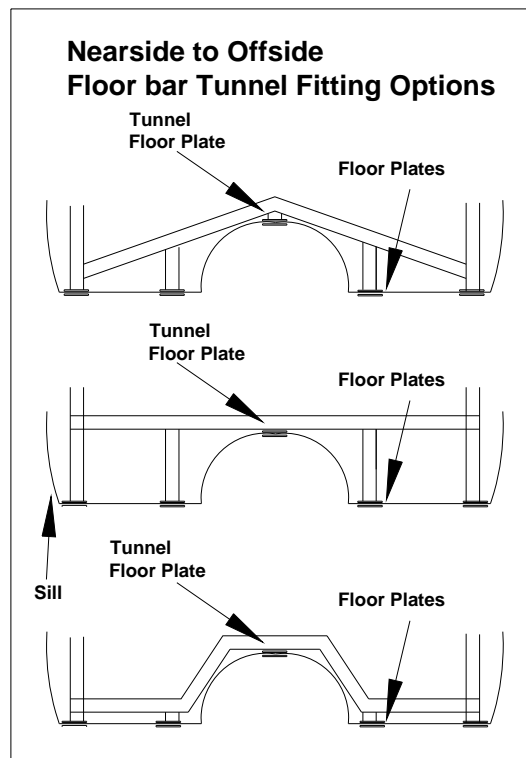
All Bars - Minimum sizes and specified wall thickness as Rule 11.
 Bar Tb is mandatory.



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Figure 1j Floor Frame – Tunnel options

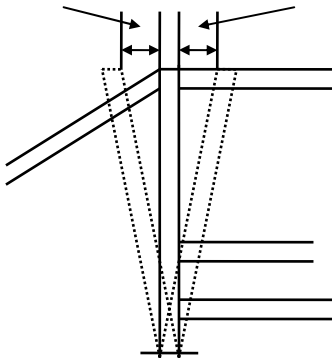
All Bars - Minimum sizes and specified wall thickness as Rule 11 & 16.



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FIGURE 2

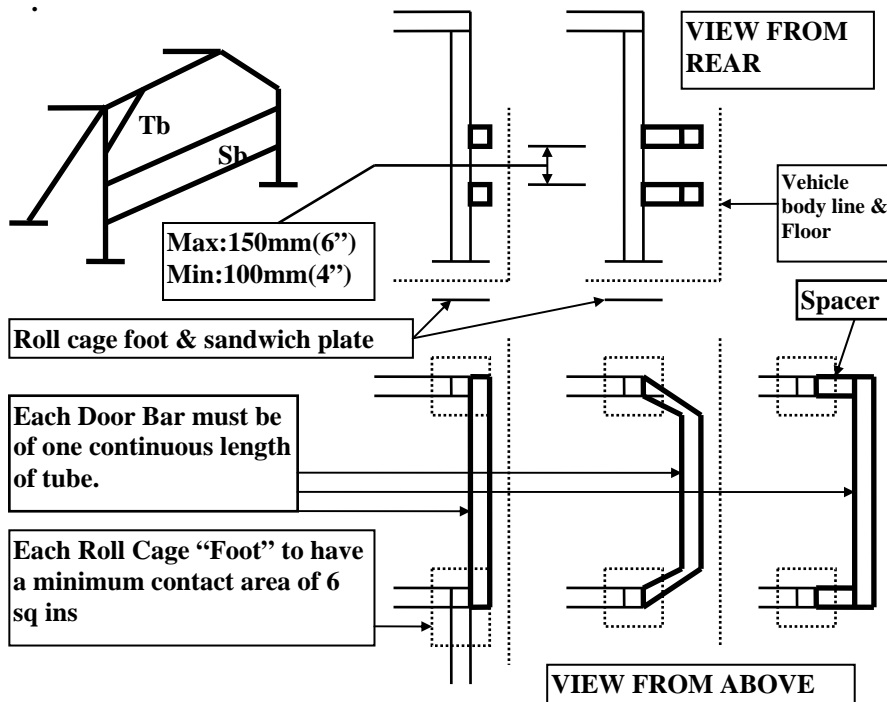
**ROLL CAGE REAR UPRIGHT:
MAXIMUM PERMITTED
DEVIATION FROM VERTICAL.
- 50mm(2") + 50mm(2")**



**UPRIGHT BAR MUST BE STRAIGHT
WHEN VIEWED FROM THE SIDE**

¶¶

FIGURE 3 SIDE BAR POSITIONS ON SALOONS



¶¶

FIGURE 4a

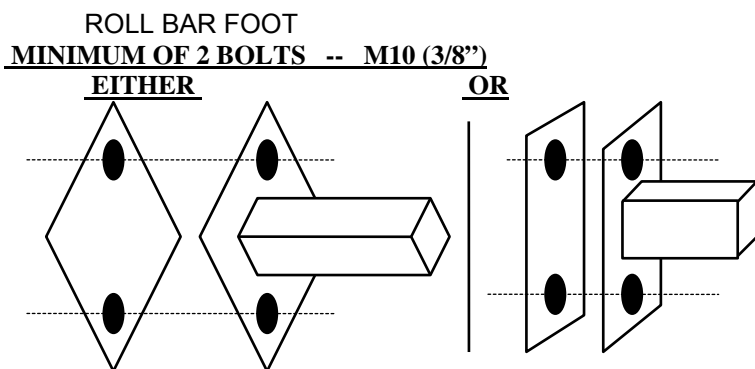


FIGURE 4b

HOLLOW CHASSIS ATTACHMENTS

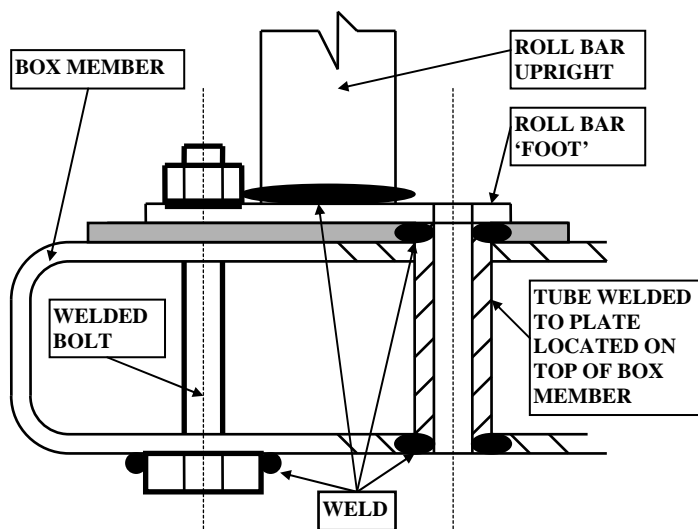


FIGURE 4c

INNER CILL FIXING

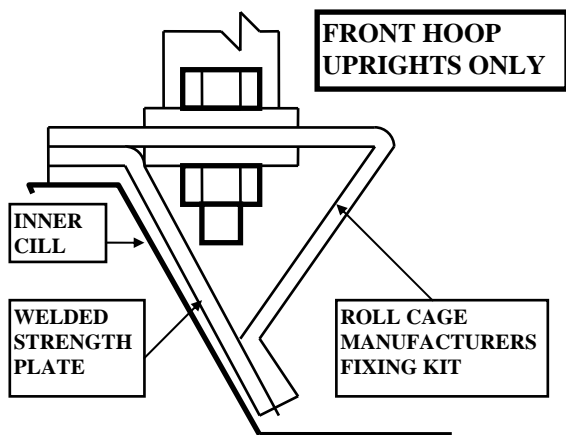
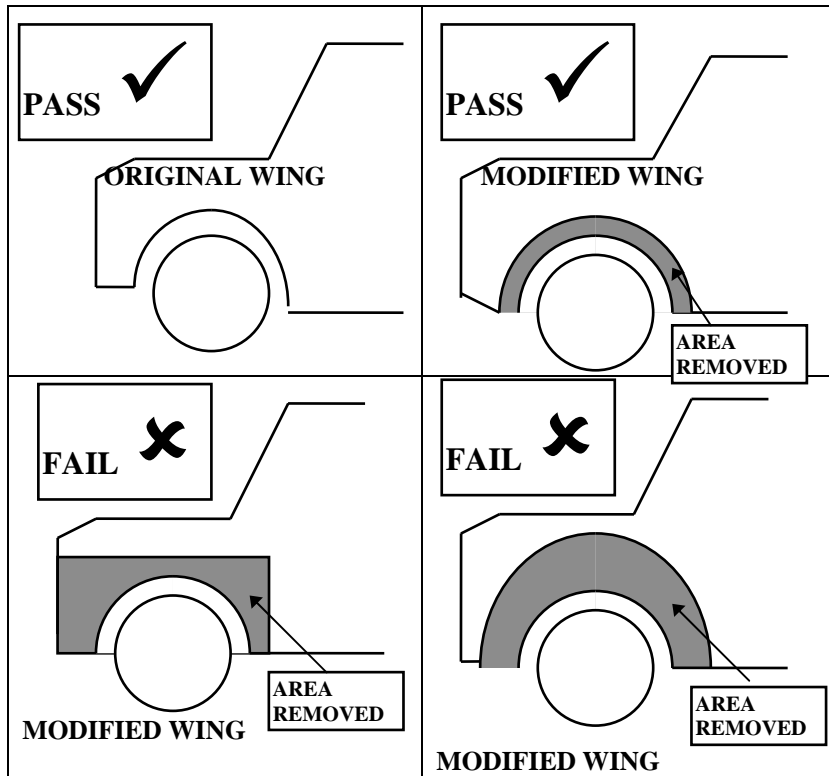
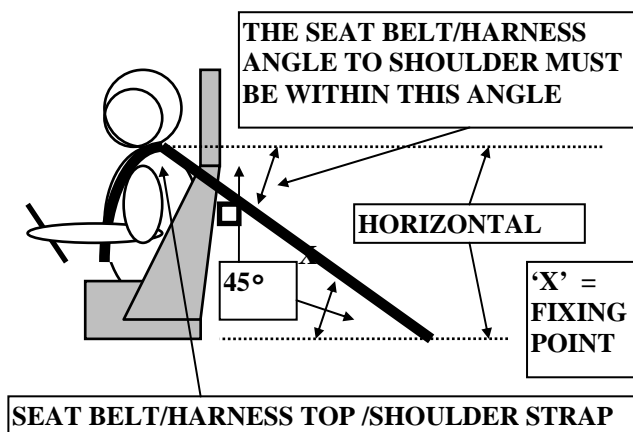


FIGURE 5 VEHICLE WING WHEEL ARCH MODIFICATIONS.



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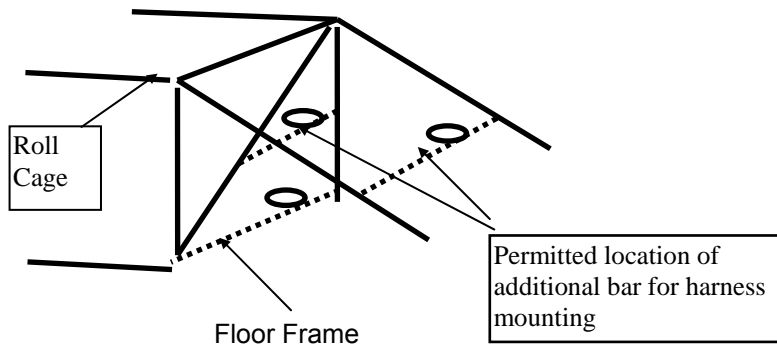
FIGURE 6a SEAT BELT HARNESS TOP STRAP



Seat Support Bar □

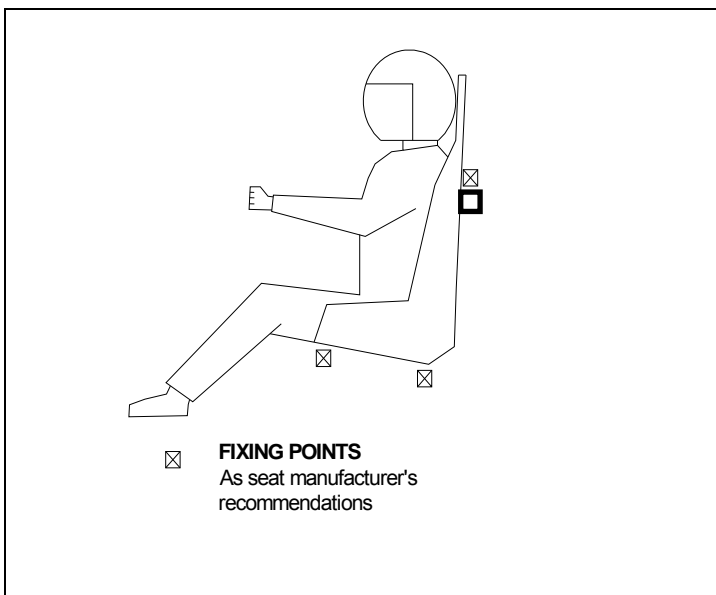
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FIGURE 6b HARNESS STEEL EYE BOLT MOUNTING PLATE
ROLL BAR FIXINGS



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FIGURE 7 DRIVER'S SEAT FIXING POINTS



Seat & Harness Support Bar. **■**
 Connected direct to rear roll cage upright.
 Minimum Box Section = 25 mm x 25 mm x 2.5mm Wall Thickness
 Minimum Circular Section = 25mm x 2.5mm Wall Thickness
 Seat Fixing Bolts = 8mm HT or greater.

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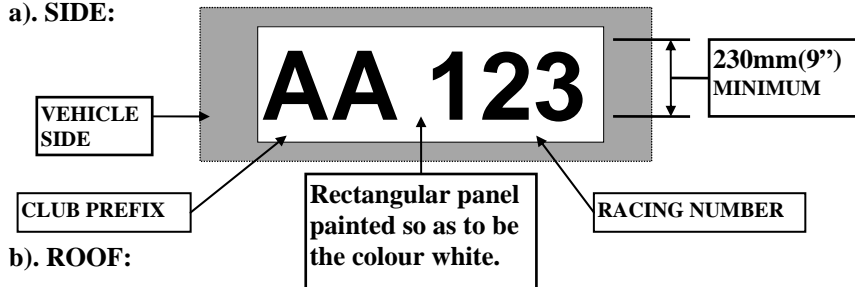
FIGURE 8 VEHICLE IDENTIFICATION

PLAIN BLACK LETTERS AND NUMBERS ON A SINGLE PLAIN WHITE PANEL BACKGROUND

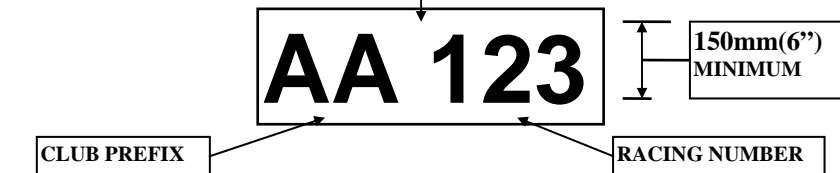
Example: ANY AUTOGRASS CLUB -- Vehicle No - 123

NASA recognised Club & League prefix & numbers = AA 123

a). SIDE:



b). ROOF:



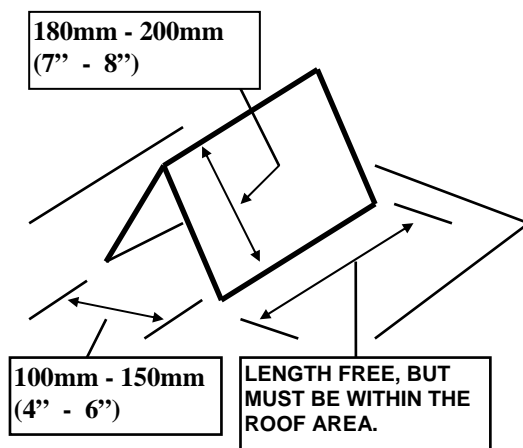
gii

The Identification (Club letters & Racing number) must match that stated in the competitor's NASA Licence. i.e. if AA123 = AA123 Not 123AA or A123A. Identification must be located forward of Rear Roll Cage upright in the competitor's NASA Licence.

All letters & Numbers must be clear, legible and upright.

Clearance between outside edge of letter and or number to outside edge of white panel:
Side: = 50mm. Roof: = 5mm.

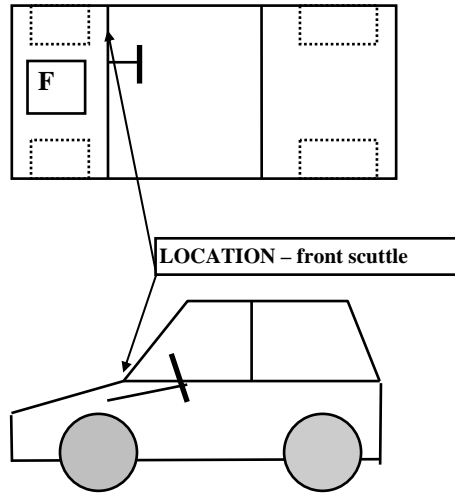
FIGURE 9 METAL ROOF NUMBER PANEL



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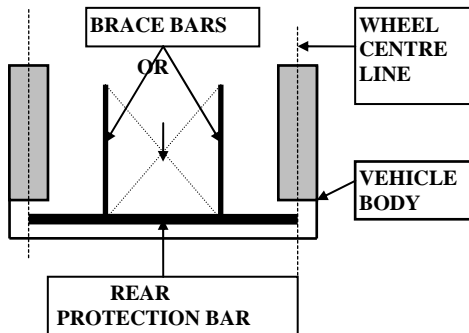
FIGURE 10 POSITION / LOCATION OF BATTERY CUT OFF SWITCH

POSITION OF BATTERY CUT OFF SWITCH



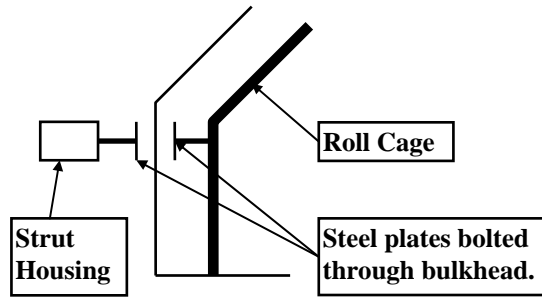
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FIGURE 11 PERMITTED REAR PROTECTION



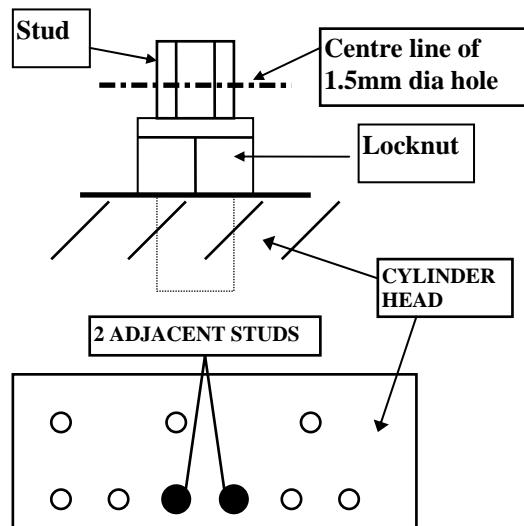
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FIGURE 12 CLASS 2 - PERMITTED FRONT SUSPENSION STRUT BRACE BAR MOUNTING



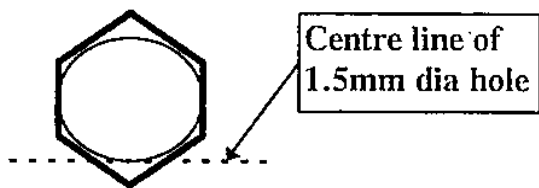
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FIGURE 13a – ENGINE SEALING



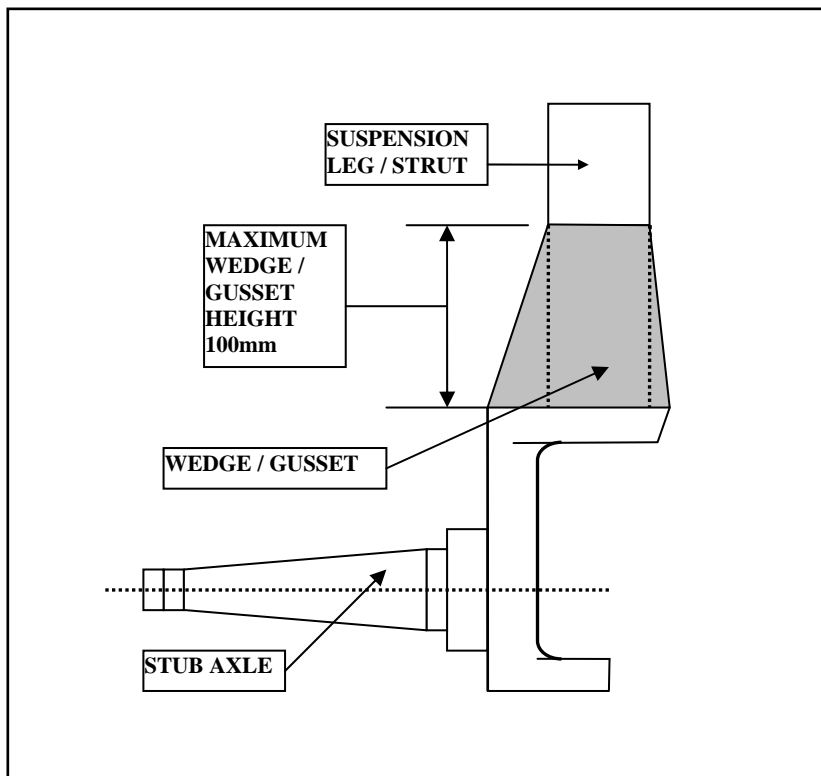
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FIGURE 13b – ENGINE SEALING



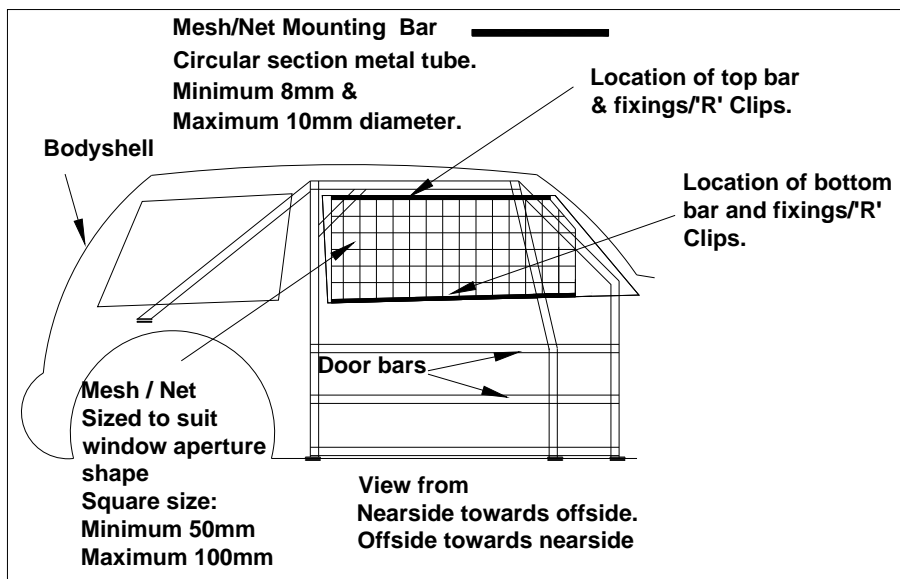
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FIGURE 14 SUSPENSION LEG/STRUT "WEDGING"



gii

FIGURE 15 CLASS 2 - SIDE WINDOW WEBBING/MESHED NET REQUIREMENTS



gii

SILENCING

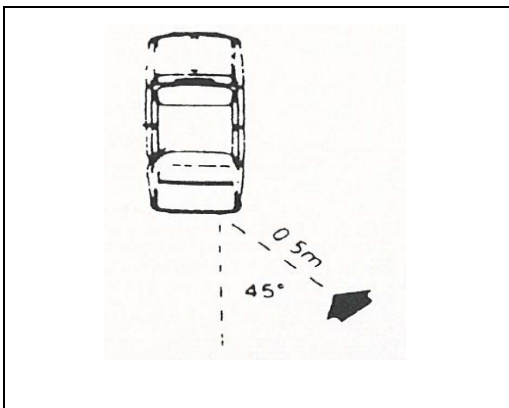
The maximum noise permissible for all vehicles is 102 Db (A).

Sound level meter readings shall be taken at 0.5 of a metre from the exhaust outlet with the microphone of the Noise Meter at 45 degrees to the exhaust axis, and with the car engine running at the appropriate r.p.m. A list of engines/r.p.m's. is available from the scrutineers.

Noise Meter Standards (minimum requirements):

- Type 1 or 2 instrument.
- International Standard IEC 651
- British Standard BS 5969.
- Range 70-120dB(A)
- Time constants Fast/Slow.
- Maximum "Hold" recommended.

NB - Please see Members Book for more detailed information



TABLE

British Standard Wire Gauges

Gauge	Diameter	(mm)
0	0.324	8.23
1	0.300	7.62
2	0.276	7.01
3	0.252	6.41
4	0.232	5.89
5	0.212	5.38
6	0.192	4.87
7	0.176	4.47
8	0.160	4.06
9	0.144	3.65
10	0.128	3.25
11	0.116	2.95
12	0.104	2.64
14	0.080	2.03
16	0.064	1.62
18	0.048	1.22
20	0.036	0.91
22	0.028	0.71

NASA NOISE TEST CHART 2018

CLASS	ENGINE	TEST RPM
1	4 Cyl	4500
2	4 Cyl	4500
3	4 Cyl	5000
	V4 / V6 / V8	4500
4	4 Cyl	5000
5	4 Cyl	5000
6	4 Cyl	5000
	V4 / V6 / V8	4500
7	4 Cyl	5000
	M'Bike	8000
	V4 / V6 / V8	4500
	Chevy V8	3500
	Twin M'Bike	8000
	M'Bike V8	8000
8	4 Cyl	5000
	M'Bike	8000
9	4 Cyl	5000
	V4 / V6 / V8	4500
10	4 Cyl	5000
	V4 / V6 / V8	4500
	Chevy V8	3500
	Twin M'Bike	8000
	M'Bike V8	8000

The construction rules in this book are intended for use by Autograss cars taking part in Autograss events as defined by the NATIONAL AUTOGRASS SPORT ASSOCIATION on a natural surface and are not necessarily considered safe for other forms of motor sport.

Drivers are advised that if they intend using their cars at events, other than events as defined by the NATIONAL AUTOGRASS SPORT ASSOCIATION They should ensure that their cars comply with the organiser's construction rules.

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