

**ASSOCIATION OF  
AUTHORISING  
BODIES**



**RULES & REGULATIONS**

**2020 EDITION**

**CLASS 2**



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

**VALID FROM JANUARY 2020  
UNTIL FURTHER NOTICE**

**ALL PREVIOUS EDITIONS ARE INVALID**

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

**IF THE REGULATIONS AND RULES DO NOT STATE THAT "YOU CAN DO IT" THEN IT MUST BE PRESUMED THAT IT CANNOT BE DONE.**

## **CLASS 2**

**FOR GENERAL BASIC CONSTRUCTION RULES (i.e. Basic requirements for all class of saloon vehicle).  
SEE SEPARATE RULE BOOK –SALOONS - GENERAL**

**CLASS 2**

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**VEHICLE CONSTRUCTION RULES - CLASS 2.**

**Must be a Front Wheel Drive Saloon or Hatchback vehicle, fitted as standard, with an engine that has 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.

Note.  
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.

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

**VEHICLE CONSTRUCTION RULES.****GENERAL**

- a. **STATEMENT of CONFORMITY.**  
Only methods of construction and modifications as listed are permitted. Any further modifications, other than those permitted, are prohibited. Any modifications other than those listed within the Vehicle Construction Rules are specifically excluded.  
i.e. If the rules do not "say" that a modification is permitted then it is not allowed.
- b. 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.  
NASA reserves the right to amend the list and or reference of eligible vehicles giving 12 months notice regarding the addition or deletion of vehicles.
- c. Wheelbase.  
Minimum wheelbase of vehicle = 2286mm (90").  
The original vehicle manufacturer's wheelbase for the particular make and model of vehicle must be retained. e.g. for a vehicle with an original wheelbase of say 2400mm it is not permitted to either lengthen the wheelbase to 2500mm or shorten it to 2300mm.
- d. Component Type & Use & Modifications – Restricted.  
The interchanging and or use of any unspecified component(s) between different models of the same make is prohibited. Only parts and or components fitted to the standard production model of vehicle chosen by the competitor may be used.

**1. ENGINE and TRANSMISSION/GEARBOX**

- 1.1 Engine cubic capacity.  
The engine, as produced by the original vehicle manufacturer, must not exceed 1300cc. See also rule 1.4.
  - a.) The engine, engine ancillaries (See Definitions) and transmission and gearbox must remain as per the vehicle Manufacturer's original specification.
  - b.) The engine must be normally aspirated as standard production. The use of turbochargers, superchargers and or any form of forced induction is NOT permitted.
- 1.2 Engine & Transmission/Gearbox Location – Restricted.  
The engine and transmission must be fitted in the original standard production location and position in the vehicle/chassis.
- 1.3 Engine & Transmission/Gearbox Mountings – Restricted.  
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.
- 1.4 Pistons & Cylinder Overbore – Carburettor vehicles.  
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.  
The non fitment/omission of any standard production piston ring is prohibited.  
Piston skirts must not be modified or shortened.  
For all vehicles a maximum of + 0.040" oversize bore is allowed. – N.B. For certain 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.

Pistons & Cylinder Overbore – Fuel Injection Vehicles.

Standard production pistons and bore and liner must be retained.

The standard production liners and pistons may be replaced; however they must be of original standard production sizes. Cylinder oversize bore liner or re-bore and oversize pistons are prohibited.

1.5 Crankshaft and Regrinding – Carburettor vehicles.

Standard production crankshaft and stroke must be retained.

The crankshaft journals may be reground and or polished.

Permitted re-grind and bearings – Free.

The standard production engine crankshaft pulley must be retained in its original standard production location and form.

Crankshaft and Regrinding – Fuel Injection vehicles – Restricted.

Standard production crankshaft and stroke must be retained.

The crankshaft journals may be reground and or polished. The maximum permitted regrind is restricted to that for which standard replacement oversize bearings are readily available.

The standard production engine crankshaft pulley must be retained in its original standard production location and form.

1.6 Cylinder Head.

For all vehicles the cylinder head **MUST** be the correct type for the engine involved.

Chemical and or "Ultrasonic" clean only permitted. "Sodium Bicarbonate (Soda Blasting)" cleaning permitted.

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 manufacturer's recommendations and accepted "reconditioning and repair" practise only.

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 "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. Valves and Valve Inserts.

Cylinder head 'lead free conversion' permitted.

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

See Check Sheet.

Note.

a). The top face of any valve insert fitted must be below or in line with the combustion chamber face. - See Check Sheet.

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.

1.7 Fuel & Air Restrictor Plate – Carburettor vehicles - 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 size 32mm 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".

Fuel & Air Restrictor Plate – Fuel Injection vehicles.

The intake air to the fuel injection unit/injector/throttle body must enter via the standard production air intake/inlet pipe/ducts only.

A fuel air mixture restrictor plate is not required.

1.8 Restrictor Plate Sealing – Carburettor vehicles.

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 – Carburettor vehicles.

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.

- 1.9 Carburetion.  
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.  
Carburettor to restrictor plate adaptor free.  
Restrictor plate to inlet manifold adaptor free.
- 1.10 Fuel Injection - Restricted.  
The use of Fuel Injection is permitted on NASA selected and specified vehicles only.  
For 2020 a single specified vehicle is permitted – Toyota Yaris – See separate Toyota Yaris rules.
- 1.11 Inlet and exhaust manifold(s).  
Carburettor Model Vehicles.  
The standard production inlet manifold and exhaust manifold may be retained or removed and replaced.  
Type free.  
However the inlet and exhaust manifolds must remain within the engine compartment.
- Fuel Injection Model Vehicles.  
The standard production inlet manifold and exhaust manifold must be retained in their standard production form and location & position.
- 1.12 Accelerator/Throttle.  
The standard production “accelerator” or “Throttle” pedal, including an “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/failure.
- 1.13 Transmission/gearbox.
- 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.
  - Standard production originals and NASA Scrutineers Committee permitted replacement transmission/gearbox drive-shaft and wheel hub components only must be used.
  - 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.  
The ‘Clutch’ foot pedal assembly must be of standard production location, form and materials.
  - Gear Ratios- Restricted.  
As listed on the Permitted vehicle’s Glasses Guide Technical Services Data Sheet.  
Also see Section 20 – CHECK SHEET.
- 1.14 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. See Section 20 – 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.
- 1.15 Balancing  
The original manufacturer’s standard production 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.
- 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.
  - Pistons: One Piston to remain as standard. The remaining pistons may be balanced to match. To be balanced by means of spot drilling only.
  - Conrods: To be balanced to manufacturer’s 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.
  - The crankshaft, flywheel, front pulley and clutch cover plate to be balanced by means of either or spot grinding or spot drilling.
  - 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 Engine component treatment.  
Shot peening or tuftriding of engine components permitted.
- 1.17 Distributor.  
The original vehicle manufacturer's standard production distributor (as listed in Palgrave/Glass's Guide Technical Services Data Sheets) or standard production replacement distributor only is permitted and must be correctly fitted. Internal modifications to the distributor are prohibited except for the original "points" and condenser, which may be removed to accommodate the fitting of a 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 reserves the right to have a camshaft removed from a competitor's 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 an 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. Polish, Paint and or decoration of external surfaces of cam cover free.
- 1.20 Transmission final drive CWP ratio - Restricted:  
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 20 – CHECK SHEET.
- 1.21 Differential types are restricted.  
The differential must be 'Free' revolving at all times.  
The differential must have a turning torque of a maximum of 3 lb/ft (36 lbf/in) (4 Nm) 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.  
Note.  
"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.
- 1.22 Drive Shafts & Hubs – Restricted.  
The original standard production transmission including drive shafts and wheel hubs must remain as originally fitted by the original vehicle manufacturer.
- 1.23 Component Sealing.  
The engine must have, available at all times, provision for the fitting of at least one readily accessible scrutineer's wire seal/tag, such that the fitting of the wire seal/tag prevents access to internal engine components.  
A minimum of two adjacent engine cylinder head retaining studs or bolts must have a single 1.2mm (1/16") diameter hole pre-drilled in each of them.  
i. Where the method of cylinder head retention is by means of stud and locking nut the hole must be located above a cylinder head retaining locknut but below the top surface of the stud. (See Fig 2a).  
ii. 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.2b)  
iii. Where cylinder head retaining studs and bolts are inaccessible, then a single 2mm (1/16") diameter hole must be pre-drilled in two accessible parts or areas of the engine.  
  
The engine cylinder head, camcover must have, available at all times, provision for the fitting of at least one readily accessible scrutineer's wire seal/tag, such that the fitting of the wire seal/tag prevents access to internal engine components.  
A minimum of two adjacent bolts must have a single 1.2mm (1/16") diameter hole pre-drilled in each of them.

## 2 CHASSIS BODYSHELL

- 2.1 The bodyshell must be complete in its ENTIRETY, including all inner and outer wings, bonnet/engine cover, luggage compartment lid (boot/tailgate), doors, rear seat bulkhead & backrest panel, rear inner wheel arches, rear seat pan, rear parcel shelf, boot floor, battery box/tray, rear valance and seams fitted.  
Note.  
i. Replacement panels.  
Standard production or NASA permitted proprietary manufactured replacement body panels only to be used

The removal of any vehicle panel including engine cover/bonnet/luggage compartment lid/boot lid and replacement of the same with non-proprietary replacement metal panels is prohibited.

ii. Composite material panels.

The use of non metal automotive "composite material" panels attached to a metal bodyshell are permitted only on vehicles with such panels fitted by the original vehicle manufacturer as a standard production item to that make or model.

iii. Drivers Compartment panels.

Protruding and or sharp brackets/tags may be removed.

iv. Under seal & Seam sealer.

All under seal and seam sealer may be removed.

2.2 Bonnet & Tailgate.

Bonnet/Tailgate hinges may be retained or removed.

Removal or "skinning" of bonnet strengthening braces/ribs prohibited.

Removal or "skinning" of tailgate strengthening braces/ribs only permitted.

2.3 Doors.

"Skinning" of all doors permitted. See Definitions.

Door Hinges

Door hinges may be Retained or removed.

2.4 Bumpers.

The complete standard production original bumpers must be retained including associated metal components (bumper inner steel support), framework and brackets.

Removal of bumpers is prohibited.

Note

The bumper inner steel support may be substituted by means of a replacement steel tube support maximum 25mm box section with a length equal to original.

Failure to ensure that the bumper remains fitted during racing is a Black Flag (Race Disqualification) offence.

2.5 Wheel Arches.

Front and rear wheel arches may have slight local modification and trimming to suit wheel & tyre assembly.

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.

i. The wheel and tyre assembly must not protrude more than 20mm beyond the wheel arch.

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

Wheel arch support bar/lip.

A steel wheel arch may be supported via a lip/edge/border metal bar maximum 8mm diameter.

The support bar or lip/edge/border may edge the wheel arch rim only.

2.6 Air Cooling holes:

The cutting or forming of additional air cooling or air inlet/exit holes to supplement the existing front or other grilles etc; in any panel/area of the vehicle is prohibited.

2.7 Towing Eye.

The original standard production towing eye may be retained or removed and replaced.

**3. WINDSCREEN / GLASS As Saloons General.**

**4 STEERING.**

4.1 Steering System.

The steering system from the steering wheel to the front wheels 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).

4.2 Steering Column.

The steering column must remain as standard production however it may be retained in its original standard production location or be lowered by means of the fitting of a single NASA permitted proprietary manufactured "lowering bracket" system only.

If repositioned - The column must be mounted from the front roll cage cross bar.

Protruding and or sharp brackets/tags may be removed from the main column outer tubing.

Note.

The steering wheel height/angle adjustment bracket/lever must be securely fixed in its chosen height/angle location by welding or secondary fastening.

It is not permitted to shorten nor lengthen the original standard production steering column.

It is not permitted to remove the original standard production steering column and replace it with an alternative column.

4.3 Steering Rack

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 Power Steering**

The original standard production power steering may be retained or removed and replaced. i.e. rack and associated parts. If removed the power steering rack may be replaced with a non-power steering rack from the same original standard production make and model of vehicle or be replaced with a proprietary "Quick" or "High ratio" steering rack. For a non power steering model the replacement of the standard production steering rack with a power steering rack is permitted.

**4.5 Tie Rod – Dust Boots**

The standard production tie rod dust boot(s) may be retained or replaced with uprated units. Polyurethane, type or similar permitted. However they must be fitted correctly onto the tie rod unit concerned.

**5 SAFETY HARNESS****5.1 Original manufacturer's seat belt anchorage reinforcing brackets must be retained.****Note.**

For existing vehicles where brackets are already removed, then a 2mm thickness steel plate, of appropriate plan size, must be welded to the vehicle to cover each of the affected seat belt anchorage holes.

**6 SEAT - As Saloons General.****7 FIRE EXTINGUISHER - As Saloons General.****8 IDENTIFICATION - As Saloons General.****9 ELECTRICAL / INSTRUMENTS****9.1 Wiring Harness & Charging system.**

The standard production general wiring harness and the charging system. may be retained or removed and replaced provided the requirements of Saloons – General Section 9 are complied with.

**Note.**

If the alternator is retained it must remain in its standard production location and position.

**9.2 Instrumentation and Gauges**

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.

**9.3 Battery type – Restricted.**

The standard production electrical battery may be retained or removed and replaced.

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

**9.4 Engine Starting system – Restricted.**

The standard production starting system including "starter" must be retained and be appropriate to the vehicle make and model and be capable of starting the engine when operated.

**10 FUEL****10.1 Fuel Pump.**

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

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

**10.2 Carburetion.**

For Carburetion See ENGINE and TRANSMISSION/GEARBOX – Rule 1.9.

**10.3 Fuel Injection - Restricted.**

The use of Fuel Injection is permitted on NASA selected and specified vehicles only.

For 2020 a single specified vehicle is permitted – Toyota Yaris – See separate Toyota Yaris rules.

**11 COOLING SYSTEMS****11.1 The standard production cooling system shall be correct for the engine fitted and must be retained in its entirety and remain in its original standard production form.****11.2 Sealed Systems.**

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

- 11.3 Radiator - Restricted.  
The water-cooling system radiator may remain in the original standard production location.  
The original standard production radiator may be retained, modified or replaced.  
The use of a single aftermarket and/or specialist fabricated radiator is permitted. Alloy and or composite metal & plastic radiator permitted.  
Note.  
The single Radiator Size/water capacity must be equal or similar to original vehicle manufacturer's capacity.  
An oversize radiator may be regarded as ballast and prohibited. Commercial vehicle radiator prohibited.
- 11.4 The radiator may be moved from the original position but must be fitted within the vehicle engine compartment.
- 11.5 Secondary Expansion Tank.  
A secondary water-cooling system expansion tank may be fitted. Maximum capacity 1 Litre.
- 11.6 Water pipes/Hoses.  
The standard production water pipes/hoses may be retained or replaced with equal pipes/hoses.  
Water pipes/hoses must be of metal or proprietary flexible hose. Silicone hoses permitted.
- 11.7 Water Pump – Restricted.  
Standard production original and replacement water pump only permitted.  
Modifications to water pump or pump pulley and/or impeller prohibited.
- 11.8 Oil Cooler/radiator type – restricted.  
The fitting and use of an 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.
- 11.9 Oil Sump & Pick Up Pipe.  
Modifications to the oil sump and oil pick up pipe may be carried out enable the oil system to function in the event of oil surge.

## 12 BRAKES

- 12.1 Brake Hose/pipes – As Saloons General.  
For all components other than brake hoses/pipes the standard production braking system must be retained, be correctly installed/fitted and be in good working order.  
Standard production original and replacement brakes and brake components only permitted.  
The 'Brake' foot pedal assembly must be of standard production materials.  
Brakes may be subject to random spot checks of foot pedal operation whilst on the starting line.  
Note.  
The rear brake compensator may be removed.  
Other modification of brake discs or drums or other braking components is prohibited.
- 12.2 The original vehicle handbrake and or parking brake, including the cable and its associated components may be retained or removed.

## 13 WHEELS

- 13.1 Wheels – Restricted.  
The wheels must be standard production or NASA permitted proprietary replacement wheels.
- i. Diameter.  
For all vehicles – Minimum diameter = 12 inches. Maximum = 14 inches.
  - ii. Wheel Width is restricted to 6" (6J).
  - iii. Offset/Inset is restricted.  
The wheel rim including tyre must not protrude more than 20mm beyond the original wheel arch.
  - iv. The use of wheel spacers permitted. (See Rule 13.2).
  - v. "Beadlock" and/or Beadlock type wheels are prohibited.
  - vi. The use and or fitment of a wheel adaptor and or combined adaptor and spacer to fit wheels of a different PCD from standard prohibited.
- Wheel fitment
- i. The use of different wheel diameter sizes on the offside and nearside of the vehicle is prohibited.
  - ii. The use of different wheel diameter sizes on the front and rear axles is permitted.
  - iii. It is permitted to mix types (Steel/Alloy) of wheels on a vehicle, provided the same type of wheel is fitted on each pair of axles.
- 13.2 Wheel Spacers – Type restricted.  
The fitting of wheel spacers is permitted. Maximum width 3mm.

## 14 TYRES - As Saloons General.

## 15 EXHAUSTS

- 15.1 Exhaust System – Restricted  
Carburettor vehicles  
The standard production original exhaust manifold and system may be retained or removed.  
The replacement manifold and system type is free. However the exhaust manifold must remain within the engine compartment.

Fuel Injection vehicles

The standard production inlet manifold and exhaust manifold must be retained in their standard production form and location & position.

For 2020 a single specified vehicle is permitted – Toyota Yaris – See separate Toyota Yaris rules.

All Vehicles.

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.

Catalytic Converters.

Where they are fitted as a standard production item may be retained or removed.

15.2 Exhaust route.

Exhaust pipe(s) must be fitted within the vehicle silhouette.

They may be routed from the engine compartment either to the tunnel and or below the floorpan to the exit point or into the driver/passenger compartment through the front bulkhead/floorpan/bodyshell to the exit point.

Where fitted inside the driver's compartment, the exhaust pipe(s) must be covered with material sufficient to act as a safety shield.

- 15.3 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 A hole may be cut into the internal and external bodywork of the vehicle to allow the exhaust pipe to pass through and or 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 pass through and or 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 - As Saloons General.****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. It is not permitted to modify any suspension component unless the alteration of the component concerned is specified within the rules.

- 17.2 All bodyshell suspension system component mountings must be retained in their original positions and be appropriate to that vehicle make and model. i.e. The modification or re-positioning or replacing of original suspension mountings is prohibited.

17.3 Wheel Camber & Wheel Castor

As Palgrave/Glasses Guide Technical Services Manual Data Sheet for the vehicle concerned.

It is not permitted to alter the camber / geometry of the suspension.

Modification of suspension components, suspension leg and or hub to suspension leg mounting brackets prohibited.

Note.

Slight deviation from standard as a result of race track conditions is 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.

17.4 Suspension components. – Restricted.

The original suspension shock absorbers, suspension leg/struts, front and rear springs, torsion bars, may be retained or replaced with uprated units. Suspension leg/struts may also be fitted with a metal "Wedge" to minimise bending.

Maximum height of metal wedge 100mm. ( See Fig. 3.).

The use of front suspension height adjustable spring platforms is permitted.

Note:

- a. Single adjustment types only are permitted.
- b. 'Remote Reservoir' & 'Piggy-back Reservoir' type dampers, and/or shock absorbers and/or inserts and/or suspension leg/struts are prohibited.
- c. 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.
- d. The use of any mechanical or other device to alter the suspension geometry is prohibited.

17.5 Front and Rear Suspension Springs.

The standard production suspension springs may be retained or replaced with uprated units.

However they must be fitted correctly onto the suspension unit concerned.

The practice of heating and bending leaf springs is prohibited.

17.6 Front & Rear Suspension Bushes & Bump Stops.

The standard production suspension bushes and bump stops may be retained or replaced with uprated units.

Polyurethane, "Powerflex" type or similar permitted.

However they must be fitted correctly onto the suspension unit concerned.

- 17.7 Strut Brace.  
A proprietary manufactured "Strut Brace" may be fitted transversely between the engine compartment suspension top turret housings.  
The Strut Brace may, via the Top Turret Housing, be connected (bolted or welded) to the front roll cage upright.  
See Fig 1.
- 17.8 Anti tramp bars & pan-hard rods.  
Anti tramp bars and pan-hard rods are allowed only where fitted as original vehicle manufacturer's standard production equipment.
- 17.9 Vehicle ride height.  
Any car where the ride height is felt to be high or to low to enhance the cars performance will be ordered and required to alter its ride height in respect of safety. Failure to comply will result in disqualification and disciplinary action.  
No minimum or maximum ride heights will be given, except for specified vehicles. The ride height will be compared to cars in full road spec trim.
- 18 PROTECTION**
- 18.1 Distributor Protection.  
Prohibited.
- 18.2 Rear Protection.  
Prohibited.
- 19 BALLAST – All Vehicles.**
- 19.1 The fitting of and or use of ballast is prohibited.  
Note.  
The use of over large or inappropriate components and or structures may be deemed as ballast and prohibited.

**20 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 NOVA**Permitted BodysHELLs.

Nova 2 or 4 door Saloon

Nova 3 or 5 door Hatchback

Permitted Gearbox.

Vauxhall "F10" gearbox only is permitted.

Either wide Ratio (WR) or Close Ratio (CR).

The listed gear ratios only are permitted.

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

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.It is not permitted to:

- i. Use a "Corsa" F13 gearbox in a "Nova" BodysHELL.
- ii. Use a "Corsa" F13 gearbox in conjunction with a "Nova" engine in a "Corsa" BodysHELL.
- iii. 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 2<sup>nd</sup> 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.

However - 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.

Valve Inserts.

Where a new replacement valve insert is to be fitted then the top face of any valve insert fitted must be below or in line with the combustion chamber face.

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.

Suspension Unit:

Check that units are "single adjustment" only.

Wheelbase.

2343mm (92.2").

See T.S.D Manual Sheet for other measurements.

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**VAUXHALL CORSA**Permitted BodysHELLs

Corsa 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.

Permitted Gearbox.

Vauxhall "F10" gearbox only is permitted.

Either wide Ratio (WR) or Close Ratio (CR).

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° 35' / 0° 45' Max.

Rear Wheel Camber = -1° 30' / -/+ 30' Max.

Suspension Unit:

Check that units are "single adjustment" only.

Wheelbase.

2443mm (96.2").

See T.S.D Manual Sheet for other measurements.

**NISSAN MICRA**Permitted 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.

Valve Spring Free Length/height.

Maximum = 46.7mm

Valve Inserts.

Where a new replacement valve insert is to be fitted then the overall majority of the insert top surface/face must be flush/in line with or just below the combustion chamber face. A fitment allowance for the installation process and chamber face shape permits a very minor part of the insert top face to be just above the combustion chamber face.

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.

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	21	20
Output Teeth	79	71	80	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° 25' / 1° 5' Max.

Suspension Unit:

Check that units are "single adjustment" only.

Wheelbase.

2300mm (90.6").

See T.S.D Manual Sheet for other measurements.

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**21 NASA PERMITTED FUEL INJECTION VEHICLES.**

Before any of the permitted vehicles are allowed to race a specific NASA Class 2 scrutineer or designated person must inspect the vehicle for compliance with the specific "Fuel Injection Vehicles" requirements.

Note.

If the regulations and rules do not state that "you can do it" then it must be presumed that it cannot be done.

Vehicle Inspection.

Upon a satisfactory inspection vehicle "Pass" will be provided and the vehicle details "logged" on the appropriate documentation. The vehicle may then proceed to race.

Upon an unsatisfactory inspection the defects found must be corrected and the vehicle submitted to further inspections as necessary until a satisfactory inspection is gained.

**PERMITTED VEHICLE****TOYOTA YARIS 1299cc.**Note.

Until further notice the TOYOTA Yaris 1299cc vehicle is the only Fuel Injection model of vehicle permitted.

Other vehicles may be permitted at the discretion of NASA.

Toyota Yaris 1299cc VVTi 16V (2SZ-FE) engine 3 or 5 door bodyshells.

Excluding: 2NZ-FE engine model variants.

Note.

Any Toyota Yaris 1299cc 16valve manual transmission engine & gearbox may be used in any 1999 to 2005 year of Toyota Yaris 1299cc 16v 3 or 5 door bodyshell.

The Donor car must be of a build date manufactured after 1<sup>st</sup> January 1999 and before 1<sup>st</sup> January 2006.

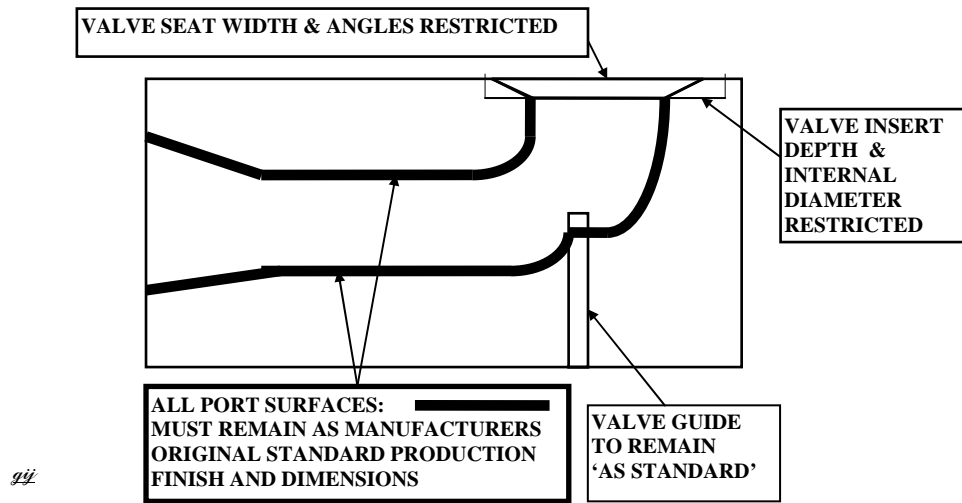
The use of a complete post 1<sup>st</sup> January 2006 engine and or components or parts from a post 1<sup>st</sup> January 2006 engine is prohibited.

**For the specific Toyota Yaris vehicle construction rules and regulations**

**– See separate Class 2 - Toyota Yaris rules.**

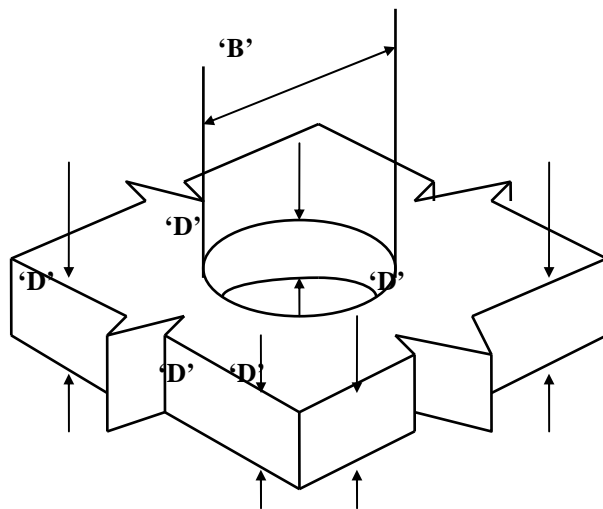
**NASA RULE BOOKS DRAWINGS – CLASS 2**

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.

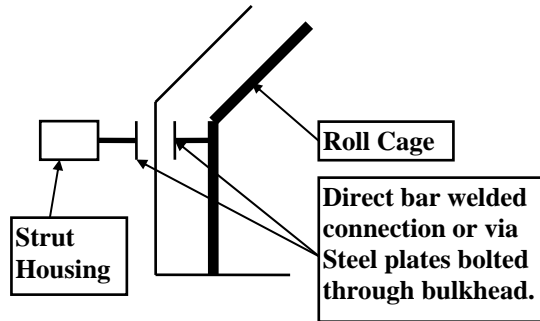


**DEPTH/THICKNESS 'D' MINIMUM = 4mm  
 MAXIMUM = 10mm  
 RESTRICTOR PLATE MUST BE OF A CONSTANT UNIFORM THICKNESS**

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

**FIGURES**

**FIGURE 1 PERMITTED FRONT SUSPENSION STRUT BRACE BAR MOUNTING..**

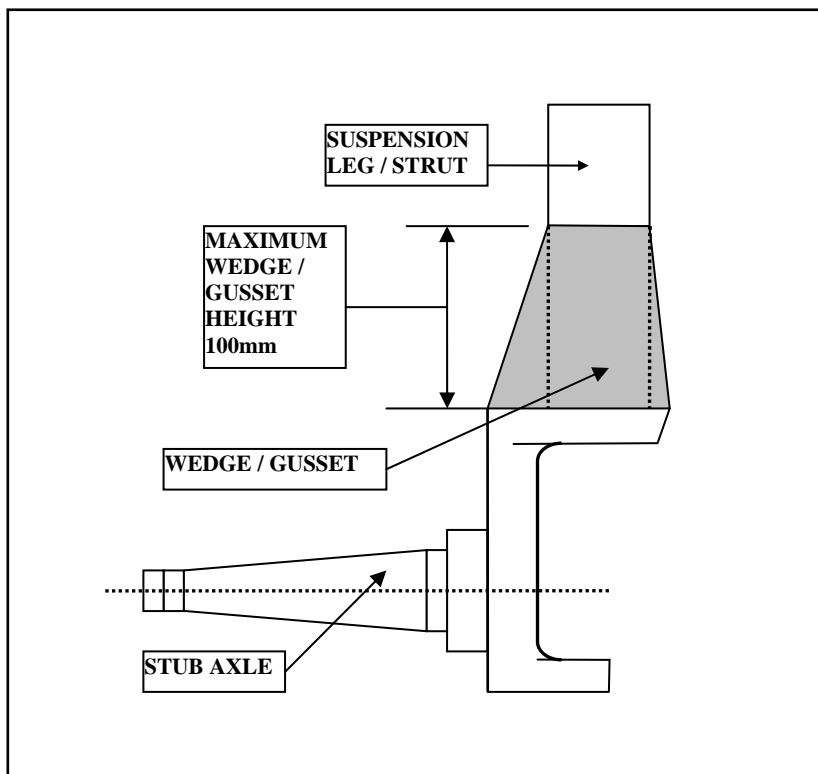


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FIGURE 2a – ENGINE SEALING – As Fig 12a – Saloons General.

FIGURE 2b – ENGINE SEALING - As Fig 12b – Saloons General.

FIGURE 3 SUSPENSION LEG/STRUT “WEDGING”.



*gij*

**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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