

**ASSOCIATION OF
AUTHORISING
BODIES**



RULES & REGULATIONS

2023 EDITION

CLASS 3



"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 2023
UNTIL FURTHER NOTICE**

ALL PREVIOUS EDITIONS ARE INVALID

NEW REGULATIONS ARE MARKED #

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 3

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

CLASS 3

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CLASS SPECIFICATION**Must be a front engined, rear wheel driven, modified saloon, over 1421cc.**

- 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). A suitable Rear Wheel Drive (RWD) or Front Wheel Drive (FWD) saloon (including permitted three and/or five door “Hatchback” saloons, permitted 2 door saloons), produced and marketed by a NASA recognised automobile manufacturer, may be taken in its entirety and modified.
Note.
If the regulations and rules do not state that “you can do it” then it must be presumed that it cannot be done.
- c). The vehicle must be made from:
i. A NASA permitted front engined, rear wheel drive, saloon body shell.
Or
ii. A NASA permitted front-engined front wheel drive (FWD), saloon bodyshell with a minimum wheelbase of 2300mm (90.55”) as per the vehicle manufacturers’ original specification or greater, that has been converted to front engine rear wheel drive. (See Rule 2.5).
Note.
NASA reserves the right via an appointed Official and or Scrutineer to permit, reject and or prohibit a vehicle/bodyshell as being suitable or unsuitable for use in Class 3 Autograss racing at any time.
For any vehicle it is Competitor’s responsibility to contact a scrutineer and or designated official to confirm that vehicle is eligible **before** using it as a donor vehicle/bodyshell.
The conversion of a Four-Wheel Drive (4WD) vehicle to RWD is not permitted. The conversion of a rear-engined RWD vehicle to front engine RWD is not permitted.
- d). Repositioning of the control pedal assembly (Foot- brake/clutch/ accelerator pedals) to suit the stature of the driver is permitted.
However, the driver’s foot-to-foot pedal contact face of each foot pedal must remain forward of an imaginary line a distance of 608mm (24”) from the centre of the front wheel hub across the vehicle from nearside to offside. See Fig. 18.
Note.
For certain specified vehicles the control pedals assembly (“pedal box”) may be located to suit stature of driver, subject to a distance limit of 762mm (30”), and inspection by a NASA Scrutineer and granted permission. See Fig 18.
Specified vehicle – Donor Bodyshell – Vehicle produced and marketed by a NASA recognised automobile manufacturer Post/after January 2010.
During construction of a specified vehicle a NASA Official Scrutineer must be contacted to enable vehicle inspection both during construction and prior to being permitted to race.
NASA reserves the right to amend the specified vehicle at any time.

1 ENGINE/GEARBOX/AXLE

- 1.1 **Engine Type and capacity - Restricted.**
The engine cc MUST comply with class cc limits for the type of engine used.
A single normally aspirated engine (See Definitions) must be used.
The engine must have a cubic capacity (cc) of a minimum of 1421 cc.
It is the Competitors and/or race vehicle constructor’ responsibility to contact a Scrutineer to confirm that the engine choice is eligible before using it in the vehicle.
- 2 valve per cylinder engine.**
For a 2 valve per cylinder engine maximum cubic capacity is free.
- “Multi” valve per cylinder engine.**
For a “multi-valve” per cylinder engine maximum cubic capacity = 2070cc.
N.B.
NASA is to consider amending the maximum cubic capacity, for possible implementation at a future date.
- Permitted Engines.** See Check Sheet.
- Prohibited Engines.** See Check Sheet.
- Induction – Restricted.**
The engine must be naturally aspirated.
The use of “Forced Induction” i.e., the fitting an engine with a Supercharger and/or Turbocharger is not permitted.
- Cylinder- Head including Ports & Valves Modification.**
Inlet & Exhaust Valves.
The numbers of valves are free; however, limitations are placed upon the type and modifications allowed to engines with more than two valves per cylinder.
- i. **“2 Valve per cylinder” engine.**
Modifications free.
Note.
The conversion of a 2 valve per cylinder engine to a multi-valve per cylinder engine is permitted. This may be achieved by modification of the original cylinder head and/or replacement of the original cylinder head by a multivalve cylinder head.

However, the “Engine block/Short motor” must have been produced by a NASA recognised automobile manufacturer and used in a standard production road vehicle. The conversion must not involve a change of block material from original or result in an engine cubic capacity of greater than 2070cc.
It is the Competitors and/or race vehicle constructor’s responsibility to contact a Scrutineer to confirm that the method of conversion is eligible before using it in the vehicle.

ii. Other “Multi-valve” engines.

Modifications to cylinder head, ports and valves free.

Note.

- a). The multi-valve engine must have originally been produced by a NASA recognised automobile manufacturer and used in a standard production road vehicle. i.e., The use of an engine originally manufactured or produced by any person or company or specialist other than a NASA recognised automobile manufacturer is prohibited. It is the Competitors and/or race vehicle constructor’ responsibility to contact a Scrutineer to confirm that the engine is eligible before using it in the vehicle.
- b). The engine block must be of the original donor vehicle’s automobile manufacturer’s original standard production engine block material. i.e., The changing of an original cast iron material engine block to an alloy type or vice-versa is not permitted.
Other modifications to engine and/or engine block/short motor free.

Pistons, conrod, crankshaft & flywheel.

Modifications to and type of pistons, con-rods, crankshaft & flywheel free.

1.2 Engine & Transmission Combination.

Any permitted engine and gearbox and prop-shaft may be used with unlimited modifications (Within class specification) provided the engine is directly attached to the gearbox (Via engine adaptor & clutch bellhousing) in a straight line and the gearbox connected via a prop-shaft (With a minimum of 2 universal joints (one at gearbox & one at axle)) to the axle & CWP in an inline straight format. See Fig. 17.

The fitting of an engine in a transverse position/location is not permitted.

1.3 Engine location/position.

a. The engine may be positioned anywhere within the engine compartment, in an in-line format, provided that the centre of the engine orifice (plug-hole) for No1. ignition sparking plug (i.e., No. 1 being the most forward sparking plug on the engine cylinder head), does not protrude rearwards further than an imaginary line, across the vehicle from the centre of the nearside front wheel hub to the centre of the offside front wheel hub. (See Fig. 14).

b. Bulkhead engine aperture.

- i. A slight local aperture may be cut into the bulkhead for clearance of the engine and associated ancillaries (Inlet & Exhaust manifolds) only. Where such an aperture is cut, then the engine aperture must be completely shielded and sealed from the driver’s compartment. (“Localised clearance” is regarded as approx 100mm (4”) clearance from item to cover.) Excessive localised clearance is not permitted.
- ii. For engines that have a rear mounted distributor, a slight local small aperture may be cut into the bulkhead for clearance of the distributor only. Where such an aperture is cut, then the distributor & aperture must be completely shielded and sealed from the driver’s compartment.

Also see Section 15 – Exhausts.

c. Engine Mountings/Cradle.

Engine Mountings/stabilisers free. However, they must be sufficient for size and weight of engine and stress loadings involved.

Engine Cradle mountings and construction must be fit for purpose. Excessive construction is regarded as ballast/reinforcement and prohibited.

1.4 Gearbox/Transmission/Axle Location & Type – Restricted.

Gearbox and or transmission and differential type is free.

Type.

Any type of Transmission/Gearbox and Axle including differential, may be used, with unlimited modification.

Note.

Electronic/ECU control gearbox prohibited.

“Transaxle”

The use of a “Transaxle” (i.e., a combined transmission and axle unit whether in a single casing or attached and or coupled units) is not permitted.

Method of connection to engine.

The gearbox must be attached to the engine in a straight line (Via engine adaptor & clutch/torque converter bell-housing/spacer) and the gearbox must be connected via a prop-shaft (With a minimum of two universal and or CV joints (One at gearbox & one at axle CWP)) to the axle CWP in an inline straight format. (Engine to Gearbox maximum distance 350mm). See Fig. 17.

The gearbox and or transmission must be located such that it is forward of both prop-shaft and the axle.

See Section 16 SAFETY SHIELDS

Propshaft.

Propshaft type is free.

The use of a Torque Tube or plain shaft or similar in place of a prop-shaft is prohibited.

- 1.5 Gearbox/Transmission Mountings.
Gearbox/Transmission Mountings - Free.
Gearbox/Transmission and or gearbox/transmission cradle mountings and construction must be sufficient for size and weight of engine and stress loadings involved and must be fit for purpose. Excessive construction is regarded as ballast/reinforcement and prohibited.
- 1.6 Gear Lever.
A single gear lever or operating device must be fitted to control the operation of the transmission system 'gear engagement/change' mechanism for the engine.
- 1.7 Clutch Operation – Restricted.
A single clutch pedal or engagement lever/device must be fitted to control the operation of the 'clutch mechanism or engaging' drives to the manual/automatic transmission system mechanism from the engine.
Clutch type and modifications to are free.
- 1.8 Rear Axle Type & Location.
Rear axle type is free.
Driveshaft type free.
- Location - For "Live" and or "Solid" Axle" – Restricted.
In a direct line between the original standard production centre of the nearside wheel-hub to the original standard production centre of the offside wheel-hub. The Differential output shafts must also be inline with this centre line. See Fig. 17.
- Location - For "Independent" Type Axle – Restricted.
The rearmost part of the differential casing must not protrude rearwards beyond an imaginary line from the rear surface of the nearside tyre across the rear of the vehicle to the rear surface of the offside tyre. The tyre rear surface datum point to be taken when the vehicle is standing still upon the ground, not whilst racing. See Fig. 17.
- 1.9 Engines with more than 2 Valve per cylinders.
Engine Sealing.
The engine must have provision for the fitting of at least one readily accessible scrutineers wire seal, such that the fitting of the wire seal prevents access to internal engine components. See Fig 15.
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.
- 1.10 Engines with more than 2 Valve per cylinders.
Bore & Stroke Labelling.
Where an engine with more than 2 Valve per cylinders is used the engine must be fitted with a readily accessible, legible and securely fixed scrutineering "Bore & Stroke & cc Label". The label shall be permanently marked or stamped with the piston bore size and crankshaft stroke size in millimetres and the engine cubic capacity (cc).
Note.
A measurements check to verify the engine cc or stated label information can be carried out at any time by Scrutineers.
The lack of such a label may result in the carrying out of a measurement check to verify the engine cc.
Where stated measurements and/or cc are found to be false the competitor and/or driver of the vehicle concerned shall be disqualified and will be reported for disciplinary action.
For shared vehicles **all** 'signed on' drivers of the vehicle concerned will be disqualified and reported for disciplinary action.

2 CHASSIS/BODY SHELL

- 2.1 The vehicle must be Rear Wheel Drive (RWD) vehicle.
Modifications to the original donor vehicle are restricted.
The race vehicle may be constructed from an original RWD vehicle or a converted original Front wheel Drive (FWD) vehicle.
- Wheelbase - Restricted.
The original vehicle manufacturer's standard production wheelbase and wheel hub centre location for the particular make or model of vehicle must be retained.
The centre of the vehicle front and rear wheel hubs must remain in their original standard production locations in the horizontal plane, when viewed from the side. The location of the wheel hub centres in the vertical plane (height of the wheel hub centres from the ground level) is free, i.e., It is not permitted to alter the vehicle wheelbase from the standard production measurement or to move the location of the wheel hubs forward or rearwards either individually or together.
Note.
For certain specified original FWD vehicles, the rear wheel hubs may be brought forward a maximum of 75mm (3") such that the vehicle wheelbase is 75mm (3") less than original.
The front wheel hubs however must remain in their original standard production locations in the horizontal plane, when viewed from the side.
Specified vehicle – Donor Bodyshell – Vehicle produced and marketed by a NASA recognised automobile manufacturer Post/after January 2010. Named Vehicle – Ford Fiesta Mk 6.
During construction of a specified vehicle a NASA Official Scrutineer must be contacted to enable vehicle inspection both during construction and prior to being permitted to race.
NASA reserves the right to amend the specified vehicle at any time.

For all donor vehicles.Rolling” chassis space-frame.

The construction of a complete steel tube “Rolling” chassis space-frame” with steel floorpan up to the rear of the rear roll cage upright and a metal floor from the rear roll cage upright to the rear of the body shell, and the attachment of a body-shell is permitted.

The bodyshell including all associated panels, roof, bulkhead and rear floor must be correctly fitted and fixed so that the whole vehicle silhouette and bodyshell location is identical/equal to the original donor road vehicle. The bodyshell must be securely fixed (Bolt size 8mm HT or greater) to the chassis space-frame and roll cage. (See Fig 1k.). See Rule 2.7 & 2.8.

There must also be a minimum of two (2) front area and two (2) rear area upper bodyshell fixings (Bolt size 8mm HT or greater) at a level that is at or above the door window aperture bottom at nearside and offside.

Note.

NASA reserves the right via a Scrutineer to reject a method choice due to size and ability and or capacity to provide the necessary secure fitment of the bodyshell to the chassis space-frame and roll cage.

For Non-“Rolling” chassis space-frame” vehicles.

The floor frame and roll cage chassis space-frame must be an integral part of the whole vehicle and bodyshell (including bulkhead, floorpan, rear floor, and panels) construction. (See Figs. 1a - i.).

2.2 Conversion of FWD bodyshells to RWD.

Front engined front wheel drive (FWD) vehicles may be converted to front engined rear wheel drive (RWD) and used in this class.

Wheelbase - Restricted.

Minimum wheelbase of donor FWD vehicle to be 2300mm (90.5”).

Note

For Specified Post 2010 vehicles – See specific requirements in rule 2.1.

2.3 Trim Removal & “Skinning” –Restricted.Trim removal, including removal of non-metal body components.

Where the above is carried out and other components removed leaving apertures then, there must also be a metal covering maximum thickness 0.91mm (20 gauge), fitted as the original vehicle silhouette, in place of any removed non-metal body components.

“Skinning”.

Skinning of panels is allowed. See Definitions.

All Doors and tailgate may be “skinned”. See also Rule 12.12.

Note.

Where the original floor is retained the Inner “B” Post, inner windscreen pillars, inner sills and all structural elements must remain in place.

Excessive skinning is not permitted. The bodyshell must retain structural integrity. The bodyshell must be securely fixed to any internal floor frame and the roll cage structure.

Seam Welding

“Seam Welding of front panels, wings and bonnet permitted.

Rear Passenger Compartment Doors – Permitted Modification - Restricted# 4/5 Door vehicles only.

It is permitted to carry out the absolute minimum modification to the part of the rear door outer skin adjacent to the original wheel arch for wheel & tyre assembly clearance.

Competitors must contact a NASA scrutineer before carrying out the modification to enable a scrutineering inspection.

NASA reserves the right to refuse permission via a scrutineer, due to the unsuitability of the vehicle and type of modification involved.

2.4 Front Bulkhead/Fire shield.

The original front passenger compartment to front engine compartment bulkhead/inner wings/fire shield may be retained, modified, or removed and replaced.

All Vehicles – Front Bulkhead/fire shield.

A complete steel front bulkhead(inner wings/fire shield) **must** be fitted. This bulkhead/inner wings may be the complete original vehicle steel bulkhead/inner wings or a substitute/replacement formed steel sheet bulkhead/inner wings (Statutory minimum thickness 20 gauge) or a repaired original bulkhead/inner wings (Repair material - steel sheet statutory minimum thickness 20 gauge).

Note.

i. Slight local modification of the lower front bulkhead and floorpan is **only** permitted for:
Localised clearance of mechanical components. (As a “Rule of thumb” “Localised clearance” is regarded as approx. 100mm clearance).

ii. Regardless of the location of the bulkhead or replacement panel the location of the driver’s feet is restricted.
The driver’s foot-to-foot pedal contact face of each foot pedal must remain forward of an imaginary line a distance of 608mm (24”) from the centre of the front wheel hub across the vehicle from nearside to offside.

Note

For Specified Post/after 2010 vehicles: The control pedals assembly (“pedal box”) may be located to suit stature of driver, subject to a distance limit of 762mm (30”). Specified Vehicle - Ford Fiesta Mk6. See Fig 18.

a). Original Bulkhead.

If the original front bulkhead/inner wings is/are retained it must remain in its original location with all points of connection to the bodyshell side, dashboard/front windscreen and floor-pan areas. i.e., The bulkhead/inner wings must be complete from the inside surface of the nearside bodyshell to the inside surface of the offside bodyshell. There must be no gaps between bulkhead/inner wings and bodyshell inside. Ceasing of the bulkhead at the either or both of the roll cage uprights is prohibited. See Fig. 19. Also Rule 2.6d.

b). Replacement Front Bulkhead.

- # It is permitted to remove the complete bulkhead/inner wings and replace it with formed steel sheet, minimum thickness 20 gauge (0.91mm).
If the front bulkhead/inner wings is/are not original, then it may be fitted in the original location of the original front bulkhead/inner wings position or fitted in a non- standard production location.
However, it must be fitted with all points of connection to the bodyshell side, dashboard/front windscreen and floor-pan areas. i.e., The bulkhead/inner wings must be complete from the inside surface of the nearside bodyshell to the inside surface of the offside bodyshell. There must be no gaps between bulkhead/inner wings and bodyshell inside. Ceasing of the bulkhead at the either or both of the roll cage uprights is prohibited. See Fig. 19. Also Rule 2.6d.

2.5 Floorpan (Bulkhead to vehicle rear).

A complete steel floor pan including the transmission/gear linkage/exhaust steel tunnel from the front bulkhead extending to the rear of the vehicle (including boot/rear luggage compartment floor and inner wheel arches) must be fitted. (See Note iii. below.

This floorpan, including the transmission tunnel, may be the complete original vehicle steel floorpan or a substitute non-original steel panel/sheet floorpan (Statutory minimum thickness 20 gauge) or a repaired original floorpan (Repair material - steel sheet statutory minimum thickness 20 gauge).

If the original floorpan is retained it must remain in its original location. If the floorpan is not original, then it must be fitted in the location of the original floorpan. See rule 2.6, 2.7, & 2.8.

Note.

- i. The original location of the floorpan in the vertical plane is regarded as the lower edge of the original manufacturer's outer sill of the vehicle when viewed from the side.
- ii. The original location of the floorpan in the horizontal plane is regarded as a horizontal line from the lower edge of the original manufacturer's outer offside sill to outer nearside sill across the vehicle.
- iii. Replacement steel floor with Floor frame.
For a vehicle that is constructed/fitted with a complete steel tube "rolling" chassis space-frame" a complete steel floor must be fitted from the front bulkhead extending to the rear of the rear roll cage upright. The floor from this point to the rear of the vehicle (including rear luggage compartment floor and inner wheel arches may be in a non original location and material but must be fitted and be of metal of minimum 0.91mm and a maximum of 2mm thickness.
However, the floor also must incorporate suspension component cover, nearside and offside "inner wheel arches" to provide cover. i.e., The floor must be such that no part of the rear suspension nor wheel tyre assembly is be visible from the driver's compartment.
- iv. Replacement steel floor with Floor frame – Thickness verification/drain holes.
There must be a single inspection hole of a minimum of 40mm diameter fitted in the floor panelling. It is permitted to fit a maximum of 1 No. per floor frame triangle, additional "Air / "Cleaning / draining holes" into the chassis floor panelling, each hole diameter free up to a maximum of 50mm diameter. i.e where there are 6 No. triangles a maximum of 6 holes may be fitted, one of which shall be the inspection hole.

2.6 Floorpan (Front, Centre & Rear).

The front, centre, and rear areas of the vehicle floorpan may have local or slight modifications for localised clearance of mechanical components, i.e., bellhousing, gearbox, prop-shaft, exhaust system pipe-work, rear axle and its associated drive shafts and the rear suspension system. ("Localised clearance" is regarded as approx 100mm clearance from item to cover. For items that are movable 100mm (4") clearance at full travel.) Excessive localised clearance is not permitted. See Section 16 – SAFETY SHIELDS.

Note.

- a) All apertures formed or cut into the floor-pan to allow the fitting of the above mechanical components must be filled in and made good with steel material such that there is a complete floor-pan. The material must provide a mechanical component cover and/or transmission tunnel/cover and/or shield of steel with a minimum thickness of 0.91mm (20 gauge) and fully welded in place. No mechanical component shall be visible or accessible from the interior and/or inside of the bodyshell. The use of non-ferrous metal and/or pop rivets for floor and or tunnel construction is not acceptable.
Note.
Tunnel Access Panel – An access panel may be fitted into part of the top surface of the tunnel.
Minimum thickness of material - 0.91mm steel - 2mm Non ferrous.
- b). Sill Location – Restricted.
Where the original floor is retained and or repaired, then the sill must remain in its standard production location.
The depth of any sill fitted with a complete replacement steel floorpan must be:
 - (i). A minimum of 50mm (2") from the base or bottom of the original vehicles' doors.
 - (ii). For certain specified vehicles only a minimum of 20mm (3/4") from the base or bottom of the original vehicles' doors. N.B. Applications for consideration and or permission for other non-listed vehicles must be made to NASA before use as a donor vehicle.
Specified vehicle: VW Polo, year 2002 onwards.
- c). Where the engine flywheel is contained within the transmission tunnel, then the area surrounding the flywheel location must be of steel sheet to 2 X (twice) the above stated minimum thickness. See Section 16 – SAFETY SHIELDS
- d). In addition, there must be a safety shield fitted to interrupt a direct line between the vehicle driver and the engine flywheel. This shield to be constructed from steel plate minimum specification: - 6.0mm thickness, 150mm (6") width. This shield must be fitted (bolted/welded) in an inverted 'U' like pattern so as to follow the contours or shape of the transmission tunnel from the tunnel to floor-pan join on the offside to the tunnel to floor-pan join of the nearside. See Section 16 – SAFETY SHIELDS.

Rear Suspension/Axle Cradle.

The suspension/axle cradle framework must be of steel tubular construction. Tube must be of minimum wall thickness 2.5mm. The cradle must be securely fixed (bolted or welded) to the vehicle chassis/floorpan/floor frame etc. The width is free provided the location of the wheel and tyre assembly complies with Rule 2.13.

The amount of rearward protrusion of the suspension/engine cradle is restricted. All components of the cradle must not protrude beyond the rear surface of the rear tyres.

The suspension/axle cradle construction may include 20mm “cross bars”. However excess framework material will be deemed as ballast and prohibited.

Note.

“Heavy Duty” or over large cradle construction may be regarded as ballast.

The choice of rear wheel & tyre combinations and their potential and actual overall diameters must be considered during construction to ensure compliance regardless of competitor wheel & tyre choice during racing.

Component support bar

The Battery/Dry Sump Tank/Fuel Tank may be mounted via a support bar connected to the rear suspension/axle cradle. Restricted to one 32mm x 32mm box, 32mm diameter circular bar fitted to the area rear of the driver’s compartment but forward of the original rear panel of the vehicle. The width to be not more than to the centre line of the rear wheels.

Note.

a). No more than 2 brace / support bars of maximum size 32mm x 32mm box, 32mm diameter circular may be used to support the component support bar.

Straight triangulation bars, maximum 32mm box/circular for the component support bars are permitted. However, they must not be connected to the rear protection bar and must cease 100mm forward of the rear protection bar.

b). The component support bars, (if fitted) may be connected to the rear boot floor or the rear suspension/axle cradle at a height +/- 50mm of the original vehicle rear boot floor location/position.

c). All support bars to the rear of the rear face of the rear tyres and protection bar must have a wall thickness no greater than 3.5mm. i.e., a maximum of 3.5mm.

d). Protection bar(s) and any support bars must not be connected to the roll cage or any brace bar(s).

e). When considering the location of the Battery/Dry Sump Tank/Fuel Tank due regard must be given to the potential results of a severe rear impact or roll over. NASA reserves the right via a scrutineer to deem a location and construction, particularly if too close to the rear panel, as not fit for purpose and unacceptable. See Rule 18.3.

Rear protection bar & its associated support bars -See rule 18.2.2.7 Floorpan - Modification/Repairs – Cross Member & Cross Brace.

For all vehicles in addition to the replacement mechanical component steel covers and shields the following items a. & b. must be fitted.

Item b. must also then be incorporated within the roll cage structure i.e., connected to the rear brace bars and the rear roll cage hoop uprights (See fig 1c, 1g & 1h). Item b. may also be used as a suspension mounting point.

a) A metal cross member fixed to the floorpan and body at low level (i.e., within 250mm – Tolerance of +10mm permitted (10” T=+5/16”) of a rearmost lowest horizontal point on the floorpan), minimum 38mm (1½”) box section or circular section steel tube with 2.5mm wall thickness. This cross member may be used as a suspension mounting point. (See Fig. 1c, 20, 21 & 22).

b) A steel cross brace fixed above the rear wheel arch, below the rear side window aperture and across the interior between the offside and nearside, minimum 30mm x 30mm box section tube - with wall thickness as specified in roll cage rules – Section 1 rule 11.

End plates minimum size 75mm x 50mm x 3mm must be welded to both the cross member and cross brace and be bolted (10mm or ⅜” bolts - minimum Two No.) through the body skin to a plate of equivalent size on the outside (See Fig. 1c).

Note.

Where the bodyshell construction makes the use of end plates impractical, then the cross brace/cross member must be fitted in a permitted manner. i.e., CROSS BRACE fully welded or bolted to vehicles by means of steel sandwich plates through the vehicle side. CROSS MEMBER fully welded or bolted to vehicle by means of steel sandwich plates through the vehicle floor/side.

2.8 Floorpan Cross Member & Floor Frame & Centre Transmission Tunnel.

For all vehicles.

a). The cross member described in rule 2.8a must be extended forwards up to the front bulkhead, to form a steel strengthening “floor frame” with bars as specified and described in roll cage rules – Saloons - General - rules 16 & 17.

This floor frame must be connected to a roll cage upright at each of the 4 corners.

There must be an “X” or 2 “Cross” bars of steel tube box section 25mm x 25mm minimum, 50mm x 50mm maximum or round (circular) section 25mm diameter minimum, 50mm diameter maximum, all with a minimum thickness of 2.5mm, fixed on top of the vehicle floor diagonally from offside rear corner to nearside front corner and nearside rear corner to offside front corner welded into the floor frame described. They may deviate to suit any steel tunnel frame/support construction

There must also be a central nearside to offside “cross bar” that may deviate (Max 300mm) to be used as a gearbox support member.

See Figs.1a, 1b,1c, 1d, 1f, 1g, 1h, & 1i.

Note.

The creation of a floorpan by the infilling of voids between the floor-frame construction tubes/bars with welded or bolted or riveted infill sheets or panels is prohibited. See Fig 1h.

b). There must be a steel tube support framework for the floorpan steel centre tunnel mounted from the floor frame. Minimum size 25mm x 25mm Box Section 2.5mm wall thickness or 25mm diameter Circular Section 2.5mm wall thickness. The steel support framework and steel tunnel route/shape and location must be sufficient to allow adequate coverage and clearance for the mechanical components - bellhousing/transmission/gearbox/prop-shaft/exhaust and other items contained therein. (See Figs.1g & 1h & 20). See also Rules 16.2, 16.3 & 16.4.

2.9 Engine Compartment - Inner Wings & Chassis & Slam Panel.

For manufacturer's original specification front engine vehicles, the original front engine compartment inner wings and front cross member and chassis rails/sub-frame and floorpan forward of the front bulkhead may be modified, retained or removed and replaced – see also Note iii.

Free modification to the vehicle original manufacturer's engine compartment inner wings and chassis rails and floorpan forward of the front bulkhead is permitted for the fitting and provision of localised clearance for: -

- a). The engine and its ancillaries and associated components. i.e., engine block & cylinder head(s), distributor, oil and/or water pumps, carburettor(s), inlet and exhaust system manifolds and pipework including their associated support brackets/cradle.
- b). The suspension and steering systems and their associated components. i.e., struts/shock absorbers, springs, wishbones, arms, and support brackets/cradle.
- c). To facilitate the fitting of non-original size of tyre & wheel assembly.
- d). To facilitate a combination of a). b). & c).
- e). All support bars forward of the front face of the front tyres must have a wall thickness no greater than 3.5mm.

Note.For RWD - Non-"Rolling" chassis space-frame" vehicles.

The provision of an engine compartment inner wing is mandatory.

All apertures in the original vehicle's engine compartment inner wing that have been formed to allow the fitting of the above must be filled in with steel material (Min. 22 gauge/0.71mm) and made good such that there is a complete steel "inner wing" panel from the top of the wing to the bottom surface of the lowest chassis rail/support cradle.

Where the original vehicle's engine compartment chassis rail is at a high level and the new chassis rails/support cradle is at a level lower than this, then, the inner wing must be extended by the addition of steel material (Min. 22 gauge/0.71mm) to the bottom surface of the lowest chassis rail/support cradle.

For FWD Conversion and "Rolling" chassis space-frame" vehicles.

The provision of an engine compartment inner wing is optional.

All apertures in the original vehicle's engine compartment inner wing that have been formed to allow the fitting of the above may be filled in with steel material (Min. 22 gauge) and made good such that there is a complete steel "inner wing" panel from the top of the wing to the bottom surface of the lowest chassis rail/support cradle.

Where the original vehicle's engine compartment chassis rail is at a high level and the new chassis rails/support cradle is at a level lower than this, then, the inner wing may be extended by the addition of steel material (Min. 22 gauge/0.71mm) to the bottom surface of the lowest chassis rail/support cradle.

The following also applies:

i). Slam Panel.

The slam panel may be removed or retained.

Where it is removed there must be a substitute bonnet single steel tube support bar (Maximum 20mm circular/box section) fitted in its place. This "Substitute slam panel bar" must not protrude more than 20mm from the inside edge of each of the front wings, outward, on each side of the vehicle.

ii). Front Panel Support Bar.

There must also be a single steel tube panel support bar (Maximum 25mm box or 25mm circular section) fitted immediately behind the front panel/metal covering, from nearside to offside to securely hold (i.e., bolted or welded) the metal covering / front panel in place. The panel support bar must not protrude beyond the inside rim of each of the front wheels on each side of the vehicle when the wheels are parallel. This support bar must have a minimum of 1 (One) bar maximum of 4 (Four) bars (Maximum 20mm box or 20mm circular section) connecting it to the suspension cradle. See Fig 13.

Note.

The suspension cradle connecting bars must not be joined together at a single point of connection on the panel support bar. There must be a minimum of 300mm in a horizontal plane, between each connecting bar at the point of connection to the panel support bar.

Any gusseting must be at a point that is a minimum of 150mm from the panel support bar.

iii). Front Suspension/Engine Cradle.

The original vehicle front suspension/front engine cradle may be modified, retained or removed and replaced.

Any replacement suspension/engine cradle framework must be of steel tubular construction of minimum thickness 2.5mm. It must be securely fixed (bolted or welded) to the vehicle front bulkhead/chassis/floorpan etc. The width is free provided the location of the wheel and tyre assembly complies with Rule 2.1. The suspension/engine cradle construction may include 20mm "cross bars".

All components of the front suspension/engine cradle must not protrude beyond the front surface of the front tyres.

The only exception to this is for an engine compartment mounted radiator. The radiator/engine cradle must then terminate at the front surface of the radiator.

Note.

The choice of engine and radiator combinations and choice of front wheel & tyre combinations and their potential and actual overall diameters and fitment must be considered during construction to ensure compliance regardless of competitor wheel & tyre choice during racing.

Where the original vehicle front cross member/chassis rails/sub-frame are retained they may remain in their original standard production location.

2.10 Engine compartment bonnet or cover.

This must be of metal and retain its original shape and silhouette except for the plan area necessary to provide a Carburettor/F.I. Throttle body, air filter cover as described in b).

- a). The rear part of the engine compartment bonnet or cover must remain flush with the front windscreen scuttle at all times.

Failure to comply with this is a Black Flag (Race Disqualification) offence.

- b). It is permitted to make a hole for carburettor(s) and/or air filter(s) to protrude through the engine compartment bonnet or cover.

However, the items that protrude through must be completely covered and shielded with steel.

The shield dimensions are restricted to the following:

Height: maximum of 160mm (6") from the original engine bonnet or cover surface.

Plan Area: Absolute minimum necessary to provide the shield.

Note.

Any removable or hinged access panel fitted into the carburettor/air filter shield must remain closed/shut at all times whilst the vehicle is taking part in a race. Failure to comply with this is a Black Flag (Race Disqualification) offence.

2.11 Bumpers.

- a). Standard production original bumpers may be retained or removed (See Saloons General - rule 2.16). It is recommended that they be retained (See b.).
- b). The original standard production automotive plastic vehicle bumper may be interchanged with that of another vehicle, provided the vehicle bumpers are so similar as to be considered identical, and the vehicle silhouette is not affected.
- c). 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 & diameter of wheel & tyre assembly used.
- d). For vehicles originally fitted with a metal bumper or automotive plastic bumper with metal insert as standard production, a fabricated metal bumper equal in shape may be substituted. Maximum metal thickness 1.5mm. For vehicles with an automotive plastic bumper without metal insert as standard production, a fabricated metal bumper substitute is prohibited.

Note.

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

2.12 Wheel Arches.

Front and rear wheel arches may be altered to facilitate wheel widening.

The wheel arch/spat 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 must not encroach into the main "A" post nor "B" post or driver's or passenger's compartment doors of the bodyshell. Excessive removal of material prohibited. See Fig.5.

For 4/5 door bodyshells see Rule 2.3 & 2.13.

Wheel arch support bar/lip.

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

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

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.

2.13 Wheel Arch/Spat size.

A wheel arch/spat must cover/shield a minimum of the upper surface of the top quadrant (25%) of the wheel and tyre assembly such that each wheel and tyre assembly does not protrude more than 20mm (3/4") beyond the vehicle body line.

Note.

The "body line" includes the actual wheel arches/spats.

The fitting of "air holes" in wheel arches/spats is prohibited. The reshaping and or modifying/cutting of doors prohibited unless permitted by scrutineers for a specific 4/5 door vehicle – See Rule 2.3.

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

2.14 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.

- i 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.
- ii 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.

2.15 Side Skirts.

Where a vehicle is fitted with modified wheel arches or spats that protrude from the bodyshell or wing more than the original fitted standard wheel arches, then the fitting of a "Side skirt" on the nearside and offside of the vehicle is permitted. The use of an "Enclosed base or bottom" type "Side skirt" is prohibited.

The Side skirt " shall be fitted so as to join the bottom rear edge of the front wheel arch with the bottom front edge of the rear wheel arch in a horizontal line (Angled "Side skirts" are prohibited) The side skirt must be constructed of a maximum of 20 gauge/0.91mm steel or aluminium sheet.

The use of proprietary manufactured "non-enclosed base or bottom" type "Hot Rod" type side skirts is permitted.

The "Side skirt" may be supported along its horizontal length via a maximum of 3 No. 25mm wide strips of 20-gauge steel or aluminium sheet fitted between the lower edge of the bodyshell and the lower edge of the "Side skirt".

It is prohibited to reinforce the outside edge of the "Side skirt" with any material, i.e., Additional metal sheeting. Double skinning, solid or round or box section tubing, wood, glass-fibre, Kevlar, automotive plastic, carbon fibre.

Due to the different types of vehicles that may have side skirts fitted, the "Side skirt" must not protrude more than whichever is the smaller dimension or distance of the following:

- i. More than 100mm (4") from the vehicle bodyshell.
- ii. Beyond an imaginary line joining the outside edge of the front wheel arch with the outside edge of the rear wheel arch.

- 2.16 Vehicle Track
The track is free subject to stated maximum overall width restriction.
See Check Sheet.
- 3 WINDSCREEN/GLASS - As Saloons General.**
- 4 STEERING**
- 4.1 Steering System.
The steering system & drive from the steering wheel to front wheels is free.
Open "Chain and or gear drives" must be fitted with chain & sprocket / gear guards.
"Steering arms" must be of metal.
NASA reserves the right via an appointed Official and or Scrutineer to reject steering components as being unsuitable for the vehicle concerned.

Power Steering. - Permitted. Type Free.
- 4.2 Steering Column
Steering column location free.
The steering column if fitted other than by the original vehicle manufacturer must be attached to:
Either: A support bar of roll cage specification, which is attached to the front roll cage uprights, between each upright, across the front of the driver's compartment in the dashboard area.
Or: A support bar or supporting steel tubing frame constructed of a maximum of 25mm x 25mm box or 25mm circular tubing fixed to the bodyshell in the dashboard area.
The support bars must not hinder driver or medical personnel access and egress to driver compartment.
- 4.3 Steering wheel mounted controls permitted.
Note.
Such 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 other driver operated vehicle controls (e.g., Steering. Ignition switch. Cut off switch. etc.).
- 5 SAFETY HARNESS - As Saloons General.**
- 6 SEAT - As Saloons General.**
- 7 FIRE EXTINGUISHER - As Saloons General.**
- 8 IDENTIFICATION - As Saloons General.**
- 9 ELECTRICAL / INSTRUMENTS**
- 9.1 Vehicle Wiring System.
Vehicle electrical wiring system free.
- 9.2 Electrical Battery.
Type and capacity of electrical battery restricted. The use of 2 x 12v batteries for 24v starting permitted.
The fitting of multiple or extra large and or commercial, heavy-goods and or agricultural vehicle batteries and/or battery containers may be construed as ballast.
- # **N.B. NASA is considering a future introduction of maximum weight limit for batteries.**
- 9.3 Battery Enclosure & Location – Restricted.
The enclosure box/container maximum size = 300mm Height x 300mm Width x 600mm Length.
Maximum wall thickness = 3mm.
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.
- # Battery Protection.
See Rule 18.3.
- 9.4 Starting system.
Type free.
- 9.5 Instrumentation & Gauges.
Instrumentation and gauges free.
- 10 FUEL**
- 10.1 Carburettor(s), Fuel Injection system and air filter(s)
Fuel Delivery system free.
Air filter(s) free. However, all must remain within the engine compartment and be within the vehicle silhouette.
- 10.2 Inlet manifold.
Type free.
However, the manifold must remain within the engine compartment.
- 10.3 Fuel Pump.
Fuel pump type and capacity free.

- 10.4 Fuel Regulator.
Fuel regulator type and capacity free.
- 10.5 Fuel Tank Location – Restricted.
The fuel tank or “Fuel cell” 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.

11 COOLING SYSTEMS

- 11.1 Cooling System.
Free.
- 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.
Original standard production water cooling radiator may be retained, modified or replaced.
The use of an aftermarket and/or specialist fabricated radiator is permitted.
Alloy and or composite metal & plastic radiator permitted.
Number and type of radiators and coolers are free. However, they must be fitted within the vehicle silhouette
Oversize radiators/coolers may be regarded as ballast and prohibited. Commercial vehicle radiator(s) and/or manufactured imitation fabricated commercial sized types prohibited.

Water/Oil Cooling Radiator Location – restricted.

The cooling radiators must be fitted within the vehicle silhouette.
The fitting of cooling radiators at the side of or within window apertures prohibited.
For radiator(s) fitted close and/or next to the window aperture the top surface of the radiator must be no greater than 100mm above the lower part of the window aperture.

Radiator Cooling Fan.

Free.
All electric fan assemblies must remain within the vehicle silhouette.

Secondary Expansion Tank.

A secondary water-cooling system expansion tank may be fitted. Maximum capacity 1 Litre. See Saloons General Rule 11.2.

- 11.4 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.
Type and number of connections free. Type of hose clamps free, however they must be fit for purpose.
- 11.5 Water Pump.
Free.
- 11.6 Oil System.
Free.
Oil coolers are permitted.
“Dry sump” and “Accusump” systems permitted.
However, it/they must remain within the vehicle silhouette.

Oil tanks.

Oil tanks (including catch tank / dry sump tank etc.) must be shielded from the driver in case of spillage in an accident.
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.

12 BRAKES

- 12.1 Vehicle braking system type is free. (For Handbrake See Rule 12.4).
Note:
Whilst racing the braking system may be subject to severe stress, pressure and/or heat loading. This must be borne in mind during brake and brake component choices.
NASA reserves the right via a Scrutineer to reject a component choice due to size and ability and or capacity to provide the necessary braking force.
- 12.2 A brake device (Calliper & disc or shoe & drum) must be fitted on each wheel hub and or wheel hub drive shaft.
A brake calliper may be fitted such that it is either “Inboard” or “Outboard”.
Note:
The use of “Kart” and or “Bicycle” brake disc and or brake calliper and associated components is prohibited.
- 12.3 The brake device fitted on each axle hub or wheel hub drive shaft of an axle must be equal in type, size and capacity.
i.e., If a disc and calliper is fitted to nearside rear hub, or nearside driveshaft then a disc and calliper of equal size and capacity must be fitted on the offside rear hub or offside drive shaft. See Fig. 16.
- 12.4 Handbrake - Restricted.
Handbrake/Parking brake type and method of operation restricted.
The original vehicle handbrake/parking brake and its associated components may be retained or removed.

A handbrake/parking brake may be fitted. If fitted a handbrake/parking brake must operate the rear wheel braking system only. Hydraulic handbrake permitted.
Electric handbrake prohibited.

Note.

For vehicles fitted with “Automatic” Transmission a “transmission-lock parking” brake permitted.
If retained the handbrake/parking brake components must operate the rear wheels braking system only.
The original vehicle handbrake and or parking brake system is considered equal to a start line handbrake.
If the original vehicle handbrake/parking brake is removed a hand lever operated start line handbrake must be fitted. The start line handbrake may be a cable or hydraulic system that operates upon the vehicle braking system.
For “automatic” transmission a “transmission-lock parking” brake is equal to a start-line handbrake.
See Saloons General – Rule 12.3.

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 handle) is permitted.
The fitting of a brake fluid shut off or isolation tap or line-lock device to facilitate the isolation or deactivation of any part of the braking system is prohibited.

13 WHEELS

13.1 Type, width and diameter of road wheel is free.

- i. Modification of a proprietary manufactured wheel other than machining to suit “Beadlock” conversion is prohibited.
- ii. Beadlock type wheels may be used but the “Beadlock rim” fixing bolts must have either “Button head” or “Countersunk head” bolts only. Hexagon head “Beadlock rim” fixing bolts prohibited. The fixings must not protrude beyond wheel rim. Beadlock wheels must be complete with all rim fixing bolts.
- vii. Maximum permitted wheel diameter is 17”.

13.2 Wheel Spacers – Type restricted.

- i. The fitting of wheel spacers is permitted.
- ii. A wheel spacer must be of proprietary manufacture, be of solid uniform one piece that incorporates an integral backing plate.
- iii. The alteration of or thinning or machining of proprietary wheel spacers is prohibited.
- iv. The associated wheel studs must be of a one-piece type and of correct size. “Extension studs” prohibited

13.3 Wheel Adaptors. – Type restricted.

The use of wheel adaptors to fit wheels of a different PCD is permitted.
The use of wheel spacers and/or combined wheel spacer and wheel adapter permitted.

Note.

Whilst racing, a wheel adaptor/spacer may be subject to severe shock and stress loading. Adaptor/spacer type and construction and fixings must be suitable and fit for purpose for the shock and stress loadings of the “Autograss racing environment”. This must be borne in mind during adaptor/spacer choices.

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

14 TYRES

14.1 Tyre Width - Restricted.

Maximum permitted tyre width is 225.

15 EXHAUST

15.1 Exhaust System

Exhaust manifold and system are free. See Saloons General - Rule 15.2.
The exhaust manifold and system must be fitted within the vehicle silhouette.

15.2 The engine exhaust system outlet or outlets must end at the rear bodyline of the vehicle, and not protrude beyond 50mm of the vehicle bodyline.

It is recommended that the outlet end be at a point between the rear of the “B” pillar and the rear of the vehicle.
The outlet or outlets must be at a point that is easily accessible for the taking of noise level test measurement readings.
All outlets of twin or multiple exhaust systems must terminate at a single common point, enclosed within an imaginary area of 300mm Diameter.

Note.

The outlet pipe or pipes must point either horizontal or downward at an angle of not more than 30° from the horizontal.

15.3 The exhaust may pass from the engine compartment to the driver’s compartment, through the front bulkhead at low level, however, the top surface of the exhaust pipe must be no greater than 300mm from the vehicle floor level when measured at the lower bulkhead/floorpan panel angle. (See Fig. 12).

16 SAFETY SHIELDS

16.1 Engine Fire Shield (Bulkhead).

All vehicles must be fitted with a securely fitted (Welded) full width metal fire shield (Bulkhead) between the driver and the engine/transmission unit, ancillaries and cooling radiators.

The shield must be installed from the vehicle floorpan to a height equal to the whole bottom surface of the front windscreen aperture and formed to suit the curvature etc; and from the nearside inside surface of the bodyshell to the offside inside surface of the bodyshell all as necessary to protect the driver. See Fig. 19.

16.2 Bellhousing & Prop Shaft.

The prop shaft, and or flywheel bell housing/cover must be fitted with a safety shield as follows:

The material must provide a mechanical component cover and/or transmission tunnel/cover and/or shield of steel with a minimum thickness of 0.91mm (20 gauge) and fully welded in place. No mechanical component shall be visible or accessible from the interior and/or inside of the bodyshell. The use of non-ferrous metal and/or pop rivets as fixings is prohibited.

16.3 Flywheel Shield.

Where the engine flywheel is contained within the transmission tunnel, then the area surrounding the flywheel location must be of steel sheet minimum 1.82mm thickness.

In addition, there must be a safety shield fitted to interrupt a direct line between the vehicle driver and the engine flywheel. This shield to be constructed from steel plate minimum specification: - 6.0mm thickness, 150mm (6") width. This shield must be fitted (bolted/welded) in an inverted 'U' like pattern so as to follow the contours or shape of the transmission tunnel from the tunnel to floor-pan join on the offside to the tunnel to floor-pan join of the nearside.

16.4 Transmission Shaft Shield.

The transmission shaft (shaft from engine to gearbox) must be within the transmission tunnel and in addition be encased/covered with or within a metal enclosure minimum thickness 4mm steel or 6mm aluminium.

16.5 Exhaust Shield.

Exhaust pipes, when fitted inside the driver's compartment, must be covered with material sufficient to act as a safety shield.

16.6 Suspension Shield.

Shock absorbers, springs or coil/shock absorber assemblies and or "link" bars/arms located adjacent to the driver's compartment must be shielded from the driver. The shield is to be made of either steel or aluminium sheet a minimum of 2mm thickness.

17 SUSPENSION**17.1 Suspension Type – restricted.**

Any form of passive suspension may be used.

Active /Adaptive/ semi-Active Suspension including electronic and/or remote adjustable/control types prohibited.

Suspension components must be of metal.

Track conditions may mean that suspension components and component to chassis mounting points may be subjected to severe stress loadings. This should always be borne in mind during suspension design and component choices.

Note.

NASA reserves the right via a Scrutineer to reject a component choice due to size and ability and or capacity to provide the necessary vehicle suspension. Suspension components must be shielded from driver See rule 16.5.

17.2 Suspension mounting points – restricted.

Suspension mounting points must be built in a secure manner and be robust and sufficient to withstand race track conditions. See also Saloons General - Safety Roll Cage Rule 16.

Note.

Where suspension mounting or support bars are fixed to the engine/gearbox cradle, or fixed to the floorpan and or floor frame, the fixing points must:

- i. Have a clearance of not less than 150mm (6") distance from any seat or harness fixing point.
- ii. Where "slider clamp" mountings are fitted to support bars adjacent to the drive wheels, the "clamp" must be held/fixed in place by a minimum of 6 number 8mm closing bolts and/or set/socket/cap-screws to prevent slider movement. ("Grub-screws" prohibited). The mounting bar may not be drilled or have any hole/openings cut to allow any bolt/set screw/item to pass through it.

17.3 Suspension Components.

Suspension unit/damper type, number, material and size/rating – Free.

Suspension arms and wheel hubs must be of metal otherwise - Free.

Suspension Springs, bushes - Free.

Rose Joints.

Rose Joints – Free, but must be fit for purpose.

Rose Joint "Half Nuts" must be steel and be fit for purpose.

17.4 Strut Brace.

A "Strut Brace" may be fitted between the engine compartment suspension turret housings.

17.5 Wheel Alignment.

Wheel camber, castor and alignment (toe in/out) is free.

17.6 Vehicle ride height.

The standard production vehicle ride height may be retained or modified.

No minimum or maximum ride heights will be given.

NASA reserves the right via an appointed Official and or Scrutineer to reject a vehicle ride height (too high or too low) deemed as not fit for purpose to ensure full control of the vehicle and unsuitable for the shock and stress loadings of the "Autograce racing environment".

18 PROTECTION**18.1 Rear Protection - Restricted.**

Rear Protection as described in Saloons – General Rule 18.3 & 18.4 permitted.

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 25mm support bars, (if fitted) may be connected to the rear luggage compartment/boot floor or if the rear luggage compartment/boot floor has been removed must be connected to either: The vehicle floorpan or "component support bar" at a height +/- 50mm of the original vehicle rear boot floor location/position or lower cross member of the "rear suspension frame/cradle".
- c). The protection bar may be fitted either inside of the rear panel, or bolted flush to the outside of the panel. 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 or support bar(s) must not be connected to the vehicle rear wheel arches.
- f). All support bars to the rear of the rear face of the rear tyres and protection bar must have a wall thickness no greater than 3.5mm.

18.2 Rear axle and ancillary protection

Local protection is permitted and must comply with the sizes indicated in Saloons General – Rule 18.3.

Rear Axle/Suspension Cradle protection bar construction must be fit for purpose. Excessive construction is regarded as ballast/reinforcement and prohibited.

18.3 Battery Protection.

For battery(s) located adjacent/next/flush to the rear window/rear panel and or in the boot/luggage compartment of a vehicle it is permitted to fit a "battery protection bar" of maximum size 1" x 1" (25mm x 25mm) box or 25mm diameter. Maximum thickness 3.5mm. The bar may be connected to the "component support bar" – see rule 2.6.

The battery protection bar construction must be fit for purpose. Excessive construction is regarded as ballast/reinforcement and prohibited.

19 BALLAST**19.1 Ballast**

The fitting of and/or use of ballast is prohibited.

The use of certain commercial vehicle and or agricultural vehicle and/or over large and or high wall thickness metal components may be construed as ballast and thus prohibited.

20 CHECK SHEET**PERMITTED AND PROHIBITED VEHICLES.**

The lists of permitted and prohibited vehicles are not fixed.

NASA reserves the right via an appointed Official and or Scrutineer to permit, reject and or prohibit a vehicle/bodyshell as being suitable or unsuitable for Class 3 Autograss racing at any time.

PERMITTED VEHICLES.

Class 3 Rules and Regulations type compliant.

Examples of permitted vehicles & wheelbase (wb).

Citroen C1 (wb 2340mm)
 Citroen C2 (wb 2315mm)
 Citroen Saxo (wb 2385mm)
 Ford Anglia 105E (wb 2300mm)
 Ford Capri Mk 1 & 2 (1970 on)
 Ford Escort Mk 1 (wb 2400mm)
 Ford Escort Mk 2 (wb 2408mm)
 Ford Fiesta (1997-02) (wb 2446mm)
 Ford Fiesta (2003 on) (wb 2486mm)
 Ford Fusion (wb 2486mm)
 Ford Orion
 Ford Sierra RWD only.
 Ford KA (wb 2446mm)
 Honda CRX Coupe 91/92
 Morris Minor 2 & 4 door Saloon (wb 2184mm))
 Nissan Micra Mk 1 (wb 2300mm)
 Nissan Micra Mk 2 (wb 2360mm)
 Opel Manta RWD
 Toyota 1000 2 door saloon RWD (wb 2159mm)
 Toyota Starlet (wb 2300mm).
 Vauxhall Chevette (wb 2392mm)
 Vauxhall Nova (wb 2343mm)
 Vauxhall Corsa (wb 2443mm)
 VW Polo – (wb 2335/7)

PROHIBITED VEHICLES.**General Description Type.**

Any vehicle that has a chassis that is not integral (Monocoque) with the bodyshell including following examples of non-permitted vehicles:

"Estate"/Station Wagon models.
 "Sports" car/Cabriolet/Convertible models.
 2 door "Coupe" models.
 4WD models.

Rear Engine RWD models.
Dual purpose (Pick Up) models of vehicle.
Vans.

Specific prohibited vehicles.

Audi TT.
Triumph - TR7 / Herald / Vitesse models.
Smart Car /Forfour/Roadster (All Models).
Subaru – Justy (4WD).
Fiat - Panda (4WD).
Fiat X19.
Jeep.
Land Rover, Range Rover, Discovery, Defender, Freelander.
Shogun.
Vauxhall Tigra.

VEHICLE WIDTH – Restricted.

All vehicles above the width of 2.0 meters whether as original standard production specification and or modified in accordance with class specific rules are prohibited.

VEHICLE WEIGHT

Free.

PERMITTED AND PROHIBITED ENGINES.

The lists of permitted and prohibited engines are not fixed.

NASA reserves the right via an appointed Official and or Scrutineer to permit, reject and or prohibit an engine as being suitable or unsuitable for Class 3 Autograss racing at any time.

It is the Competitors and/or race vehicle constructor's responsibility to contact a Scrutineer to confirm that the engine concerned is eligible before using it in the vehicle.

Permitted Engines.

Those that comply with NASA "Engine" Definition.
"Scat V4 Engine.

Prohibited Engines.

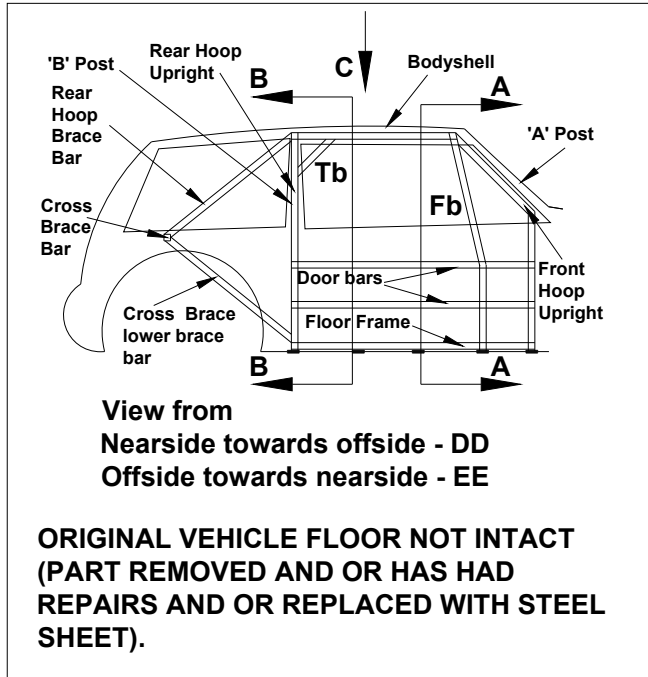
"Millington" multi valve engine.
Ford/Cosworth BDG.
Rotary engine.
"Motorcycle or Motorbike type" engine.
ATV or Quad Bike engine.
"Motorcycle Hybrid" engine.
"Motorbike/cycle conjoined" engine. e.g., "RPE" or "Powertec" or similar V4, V6 or V8.
Any engine fitted with forced induction.
Any engine fitted with Nitrous Oxide Injection.

FIGURES.

Figure 1a.i, 1aii, & 1bi - Roll Cage - Original Floor Intact.
As Saloons General. - Figs 1a, 1b, 1c, 1d, & 1e.

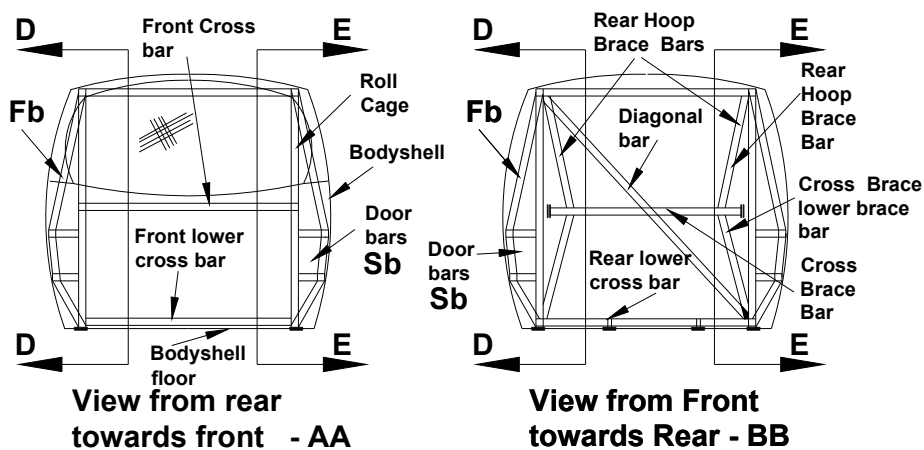
Figure 1b.ii - Roll Cage - Original Floor not Intact.

All Bars - Minimum sizes and specified wall thickness as – Saloons General - Roll Cage Rule 4.
 Bar Tb is mandatory.
 Bar Fb is mandatory for certain specified vehicles – see Saloons General.



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Figure 1b.iii - Roll Cage - Original Floor not Intact.

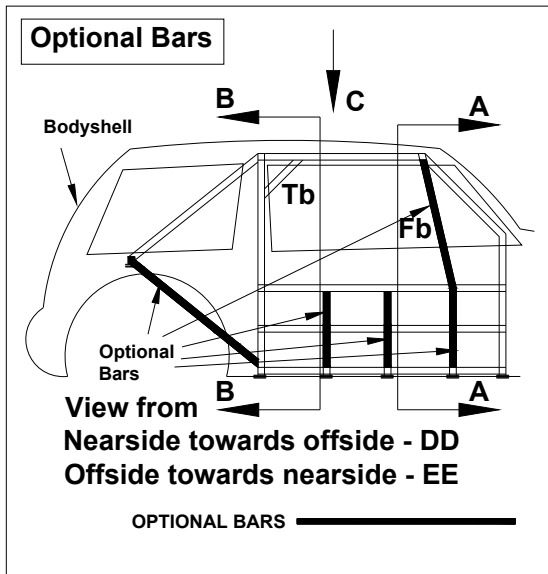


**ORIGINAL VEHICLE FLOOR NOT INTACT
 (PART REMOVED AND OR HAS HAD REPAIRS
 AND OR REPLACED WITH STEEL SHEET).**

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Figure 1c Roll Cage Optional Bars – Side Elevation.

All Bars - Minimum sizes and specified wall thickness as – Saloons General - Roll Cage Rule 4.
 Bar Tb is mandatory.
 Bar Fb is mandatory for certain specified vehicles – see Saloons General.



NOTE.
 Some optionals bars become mandatory if original vehicle floor not intact - See Fig 1b.

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Figure 1d - Roll Cage – Optional Bars. - As Saloons General. Figs 1h.

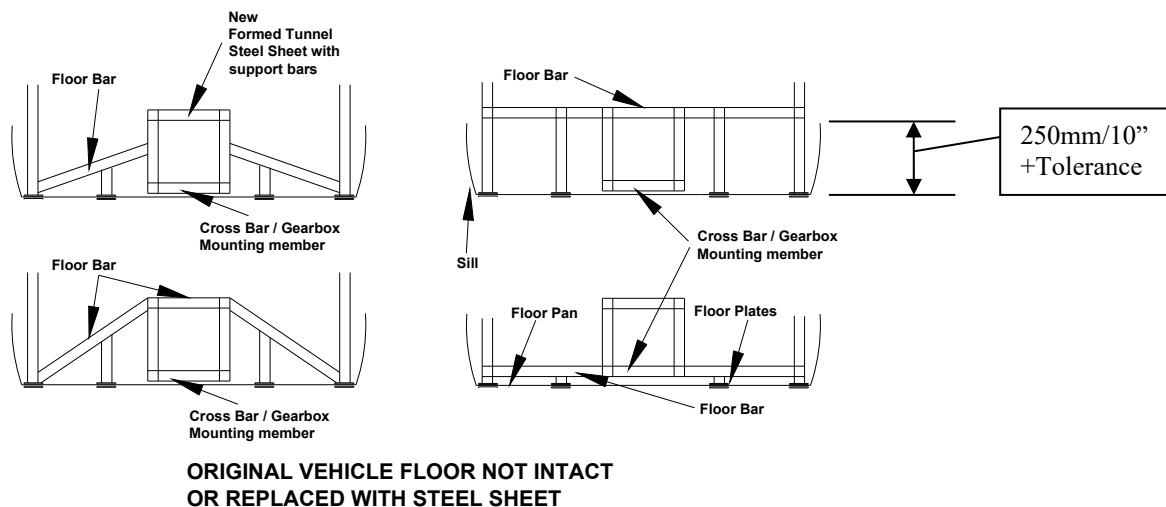
Figure 1e - Roll Cage - Original Floor Intact. - As Saloons General. Figs 1i.

Figure 1f - Roll Cage - Floor Bar – Tunnel options. - As Saloons General. Figs 1j.

Figure 1g Floor bar – Tunnel Frame/Support Options.

All Bars - Minimum sizes and specified wall thickness as – Saloons General - Roll Cage Rule 4.
 Tunnel Frame/Support bars are mandatory.
 Beam must be no greater than 250mm/10” from main horizontal section of floorpan.

Nearside to Offside - Floor bar Tunnel Fitting Options

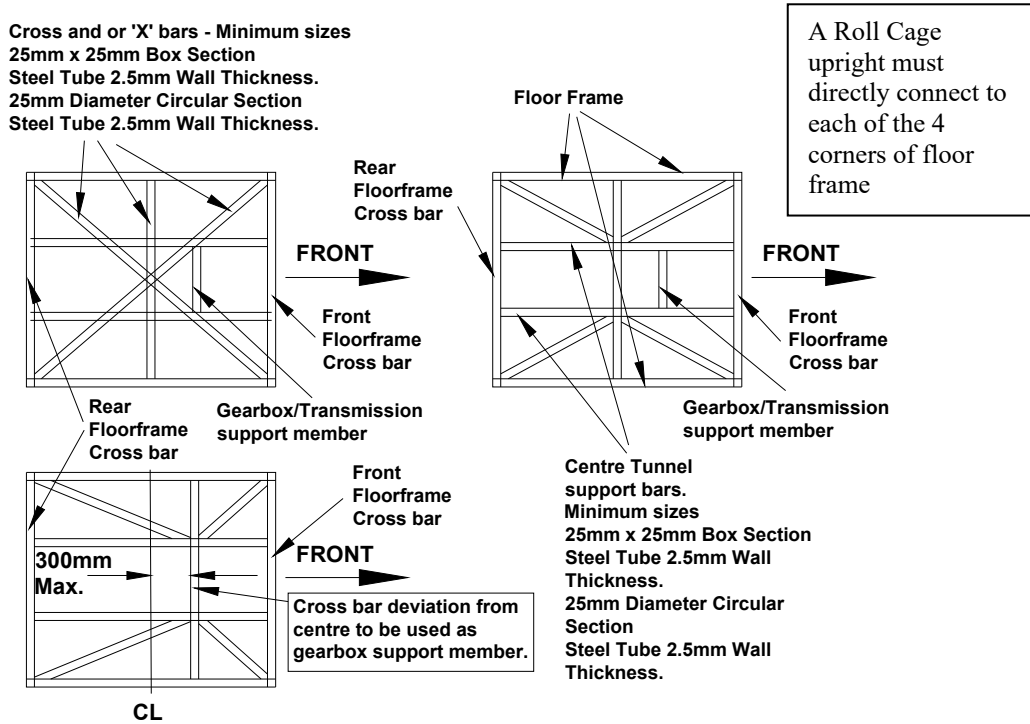


ORIGINAL VEHICLE FLOOR NOT INTACT OR REPLACED WITH STEEL SHEET

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Figure 1h – Floor Frame & Centre Tunnel Frame/Support Options.

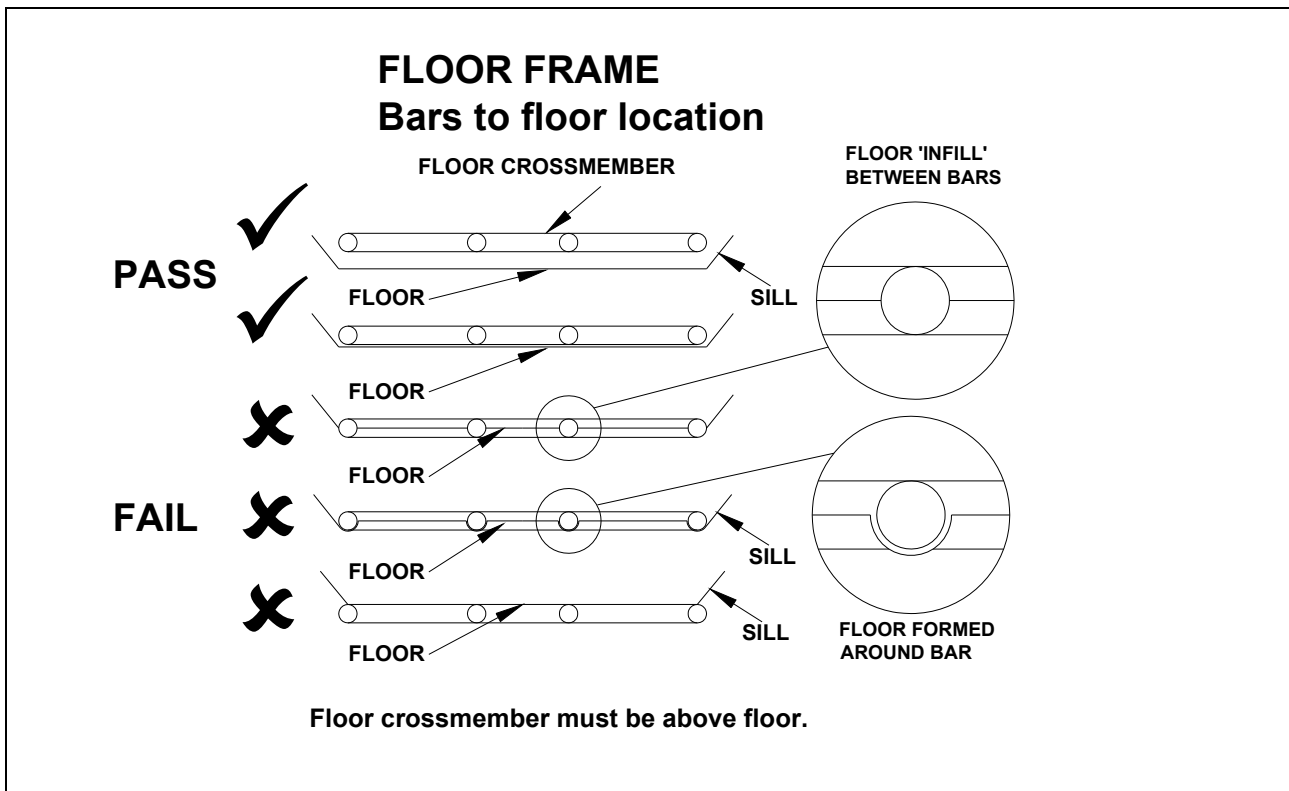
All Bars - Minimum sizes and specified wall thickness as – Saloons General - Roll Cage Rule 4.



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Figure 1i – Floor Frame Location.

Note: A Roll Cage upright must directly connect to each of the 4 corners of the floor frame.



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Figure 1j – Non-Spaceframe Rolling Chassis Vehicles Construction.

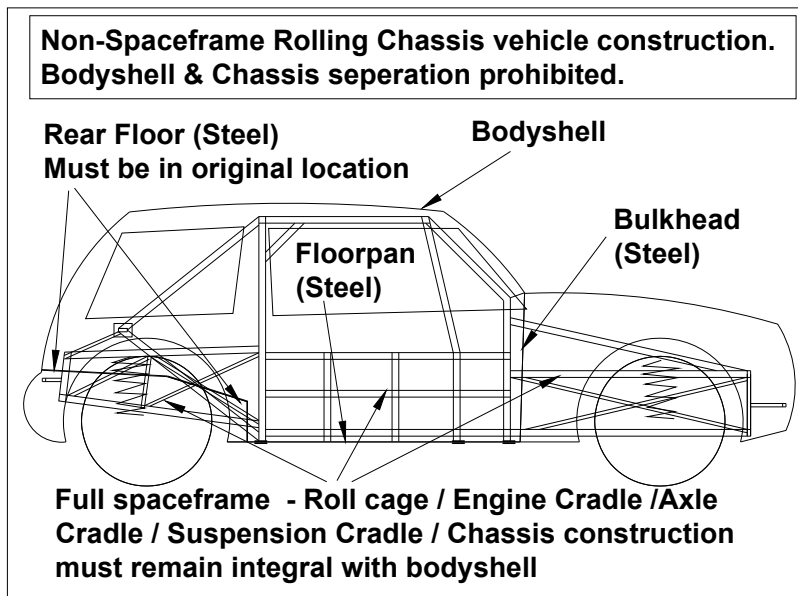


Figure 1k – Spaceframe Rolling Chassis Vehicles Construction.

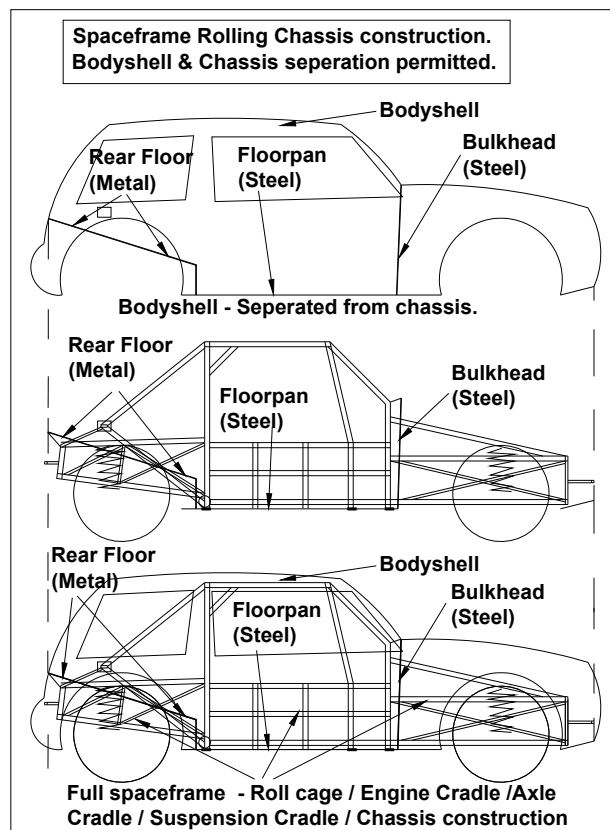
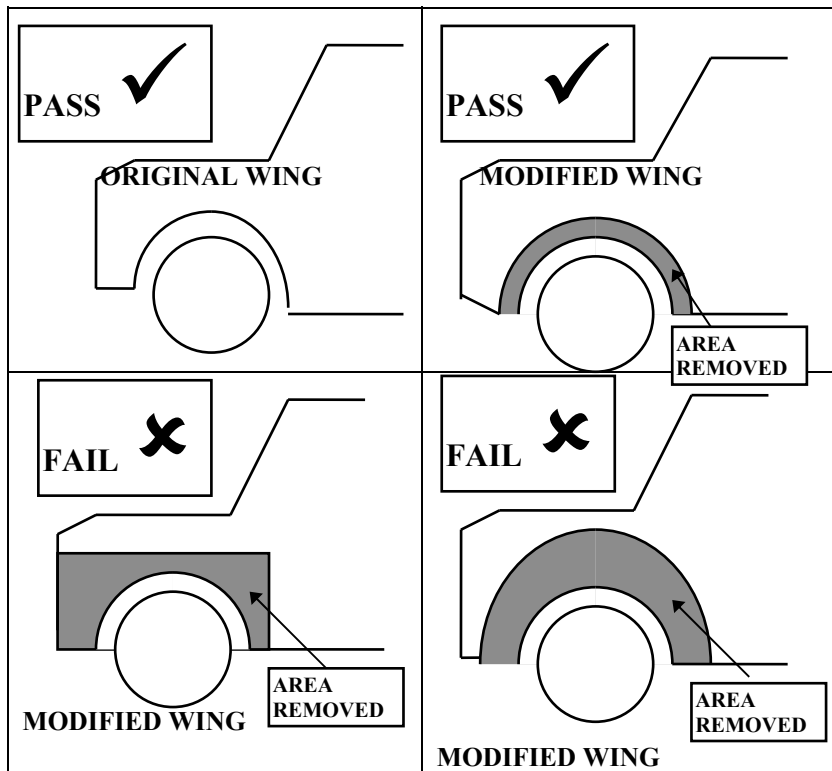
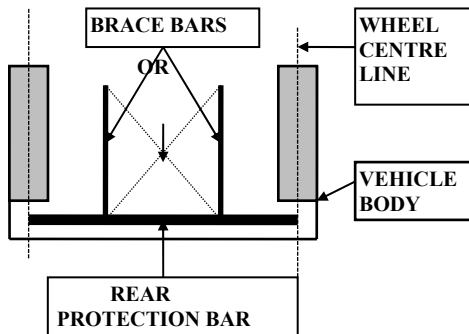


FIGURE 5 VEHICLE WING WHEEL ARCH MODIFICATIONS.



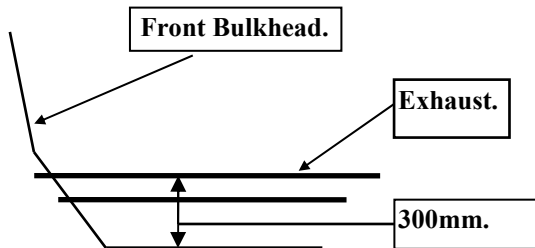
gii

FIGURE 11 PERMITTED REAR PROTECTION.



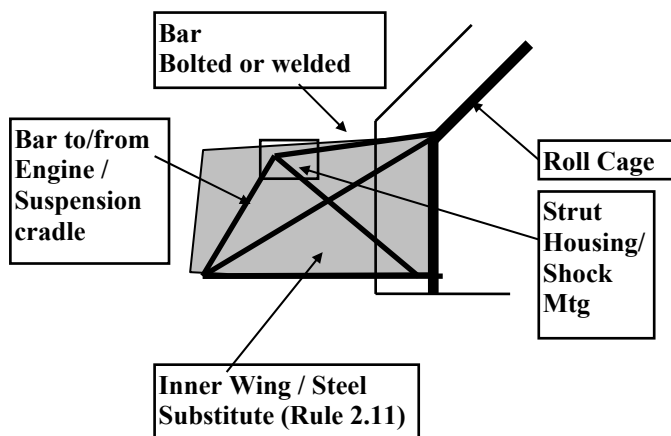
gii

FIGURE 12 PERMITTED EXHAUST THROUGH BULKHEAD LOCATION.



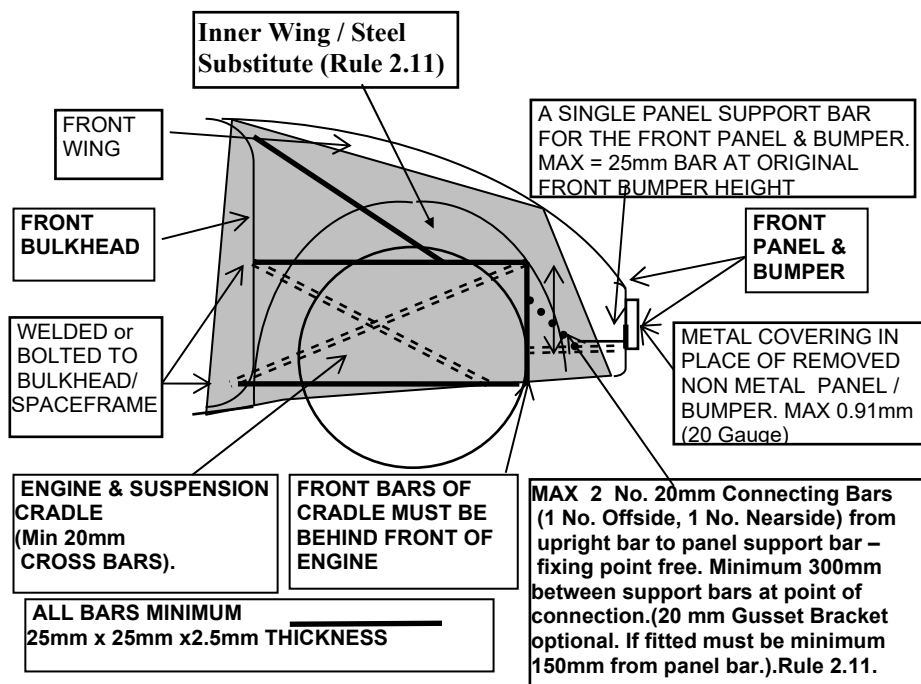
gii

FIGURE 13a PERMITTED FRONT SUSPENSION ENGINE CRADLE & INNER WINGS.



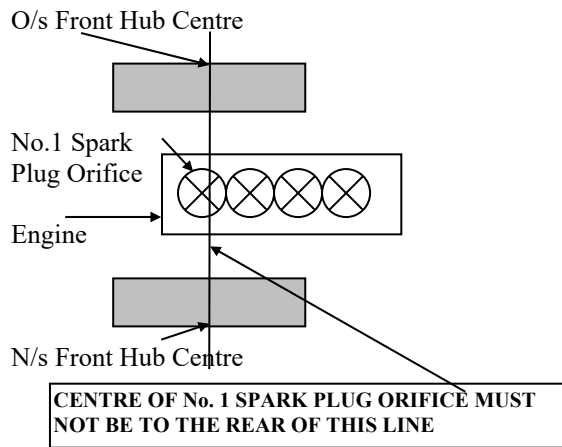
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FIGURE 13B PERMITTED FRONT SUSPENSION ENGINE CRADLE & INNER WINGS.



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FIGURE 14 ENGINE LOCATION.

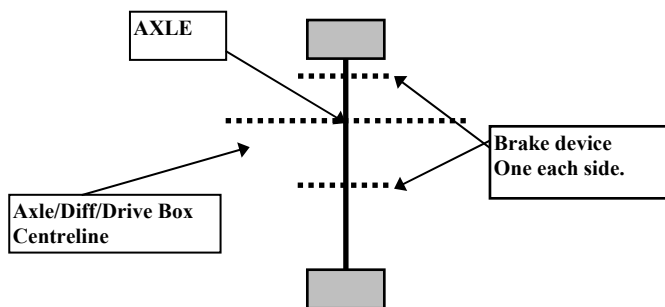


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FIGURE 15a – ENGINE SEALING – As Fig 12a – Saloons General.

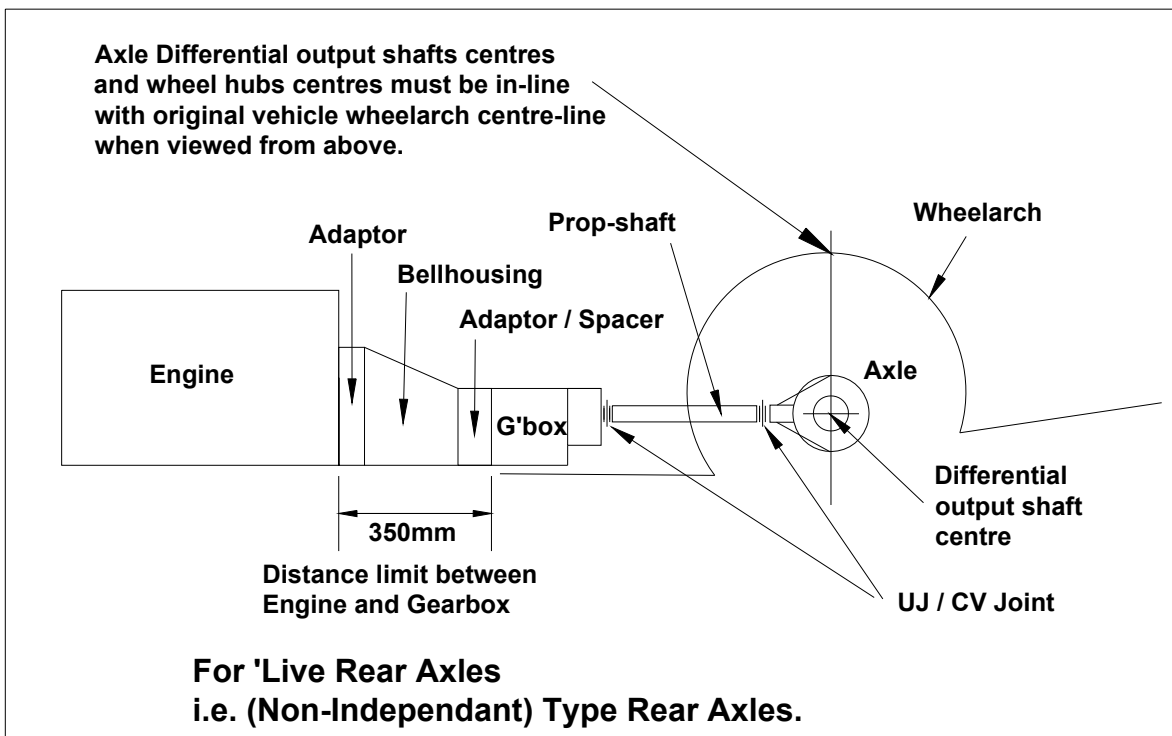
FIGURE 15b – ENGINE SEALING - As Fig 12b – Saloons General.

FIGURE 16 – BRAKES.



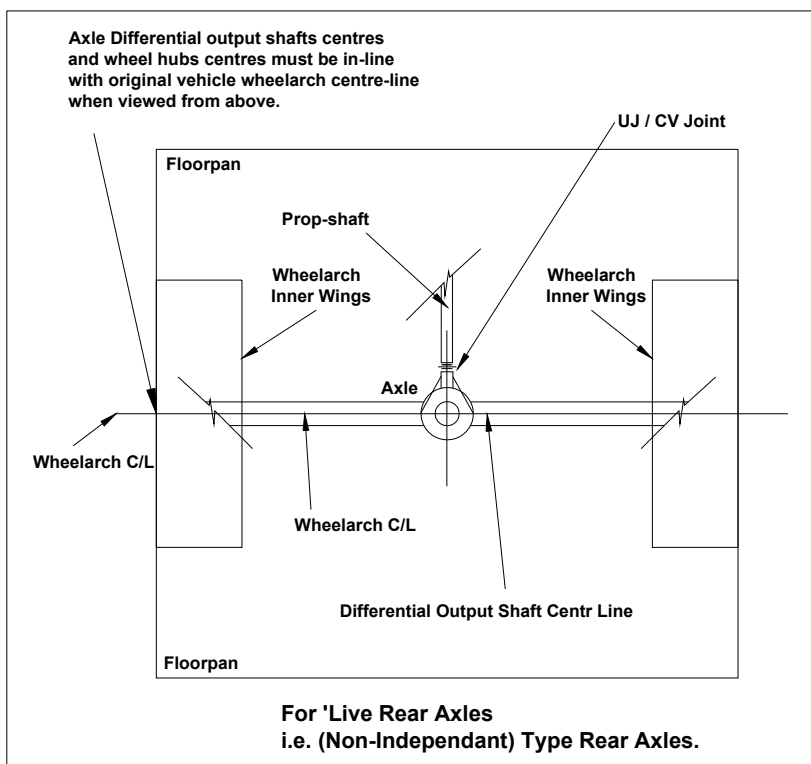
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Fig. 17
17a. ENGINE/GEARBOX/PROP-SHAFT/AXLE - INLINE REQUIREMENT.



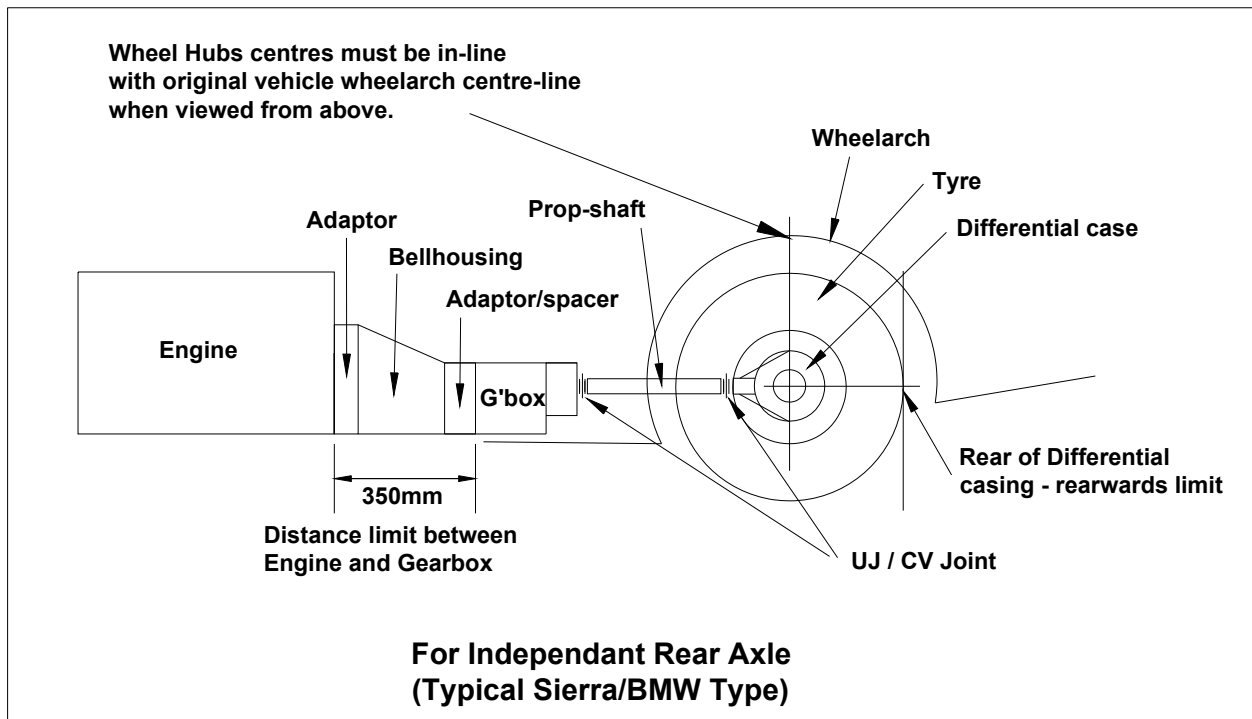
¶¶

17b.



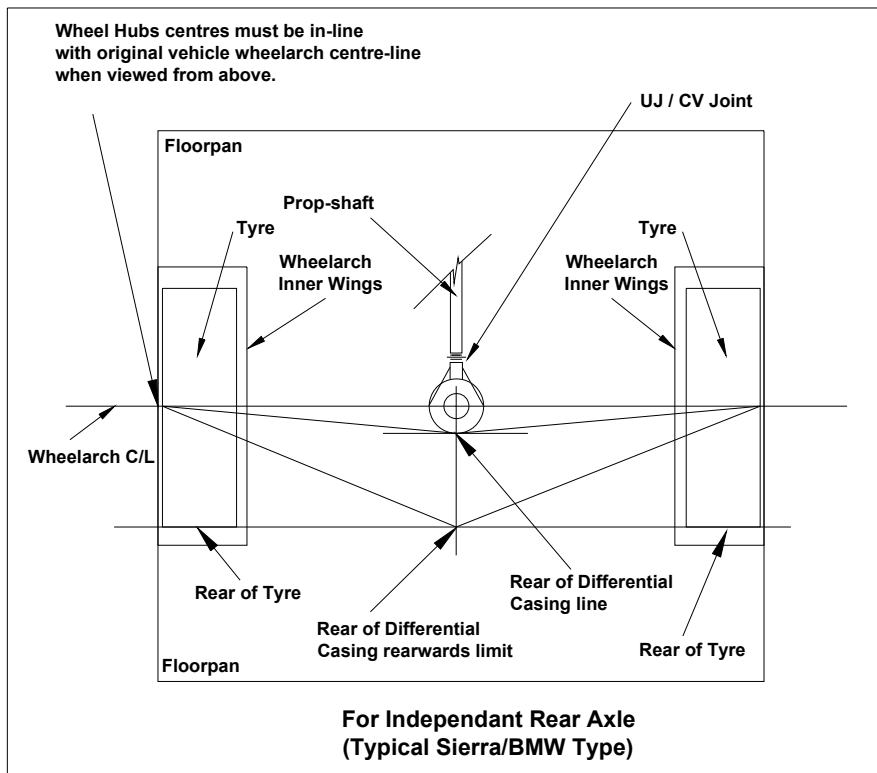
¶¶

17c.



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17d.



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FIGURE 18. - FOOT PEDAL LOCATION RESTRICTIONS.
N.B. Specified post-2010 donor vehicle = Ford Fiesta Mk6 only.

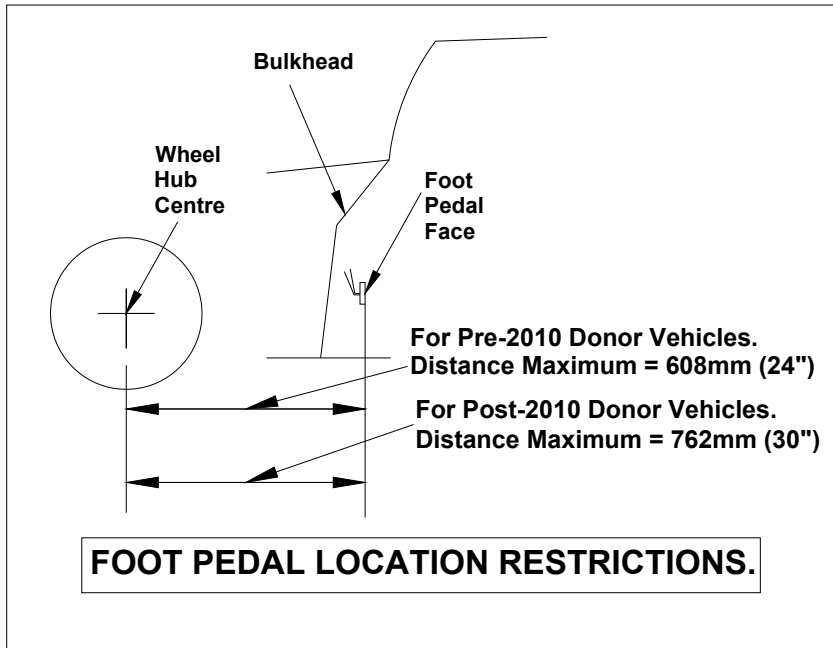


FIGURE 19. - FRONT BULKHEAD REQUIREMENTS.

N.B.

The bulkhead must fit from inside nearside bodyshell to inside offside bodyshell across the vehicle, without any gaps.

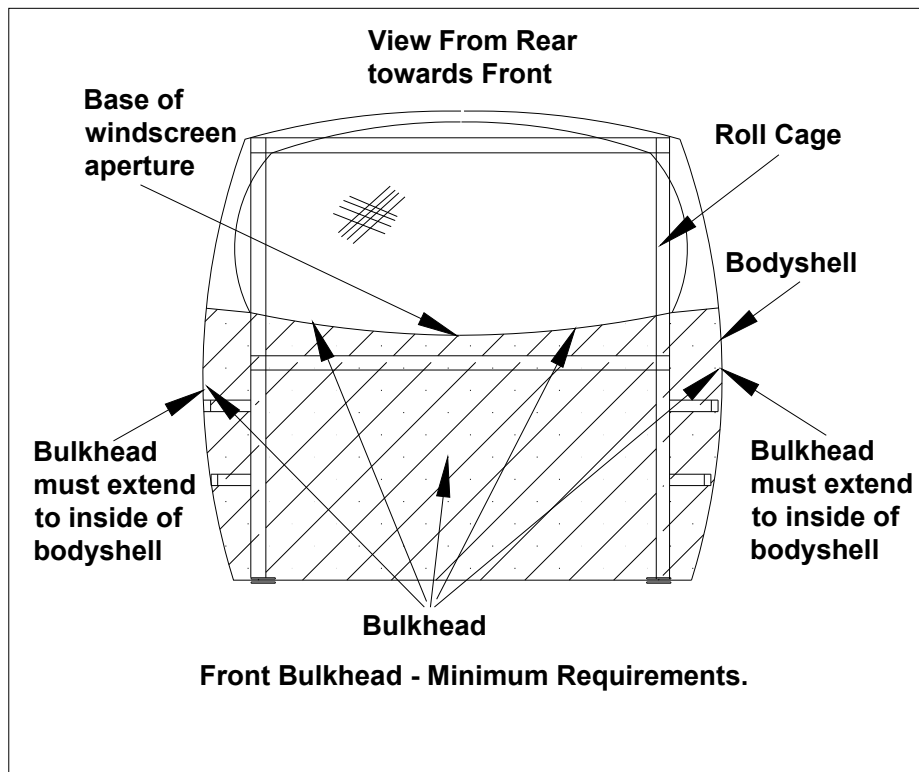
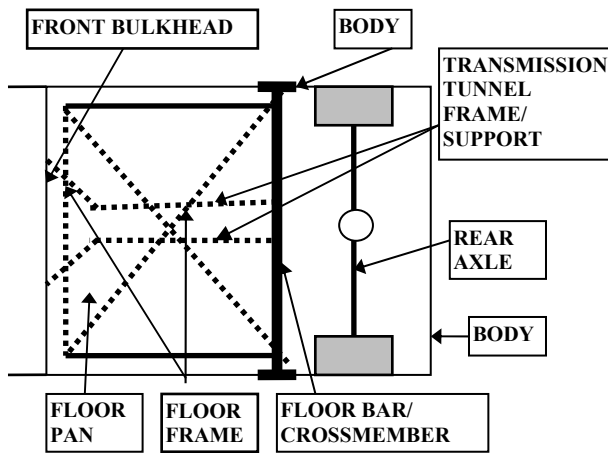
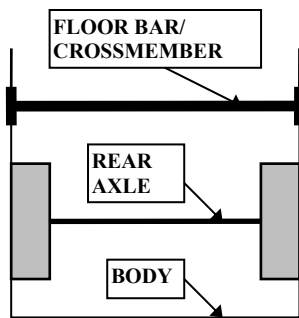


FIGURE 20. – FLOOR BARS.
Figure is diagrammatic.



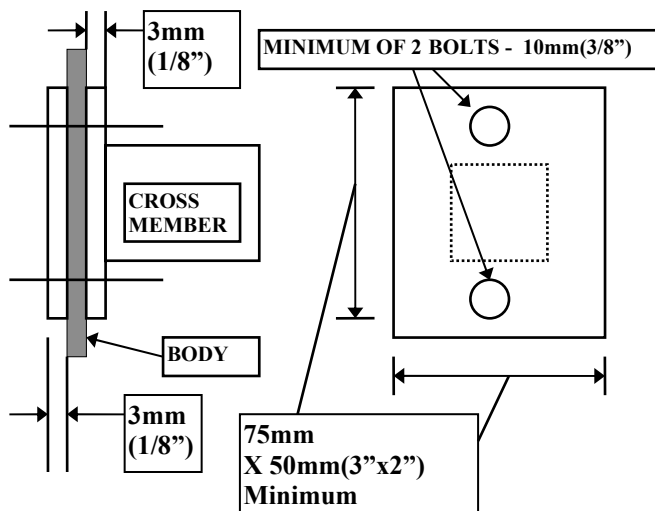
gii

FIGURE 21 FLOOR CROSS BAR.



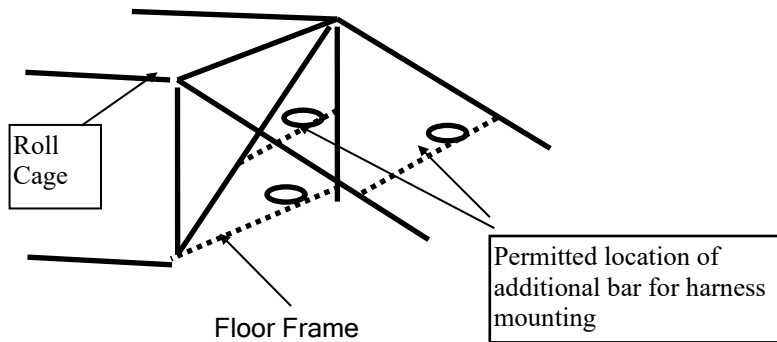
gii

FIGURE 22 CROSS BRACE/MEMBER END PLATES.



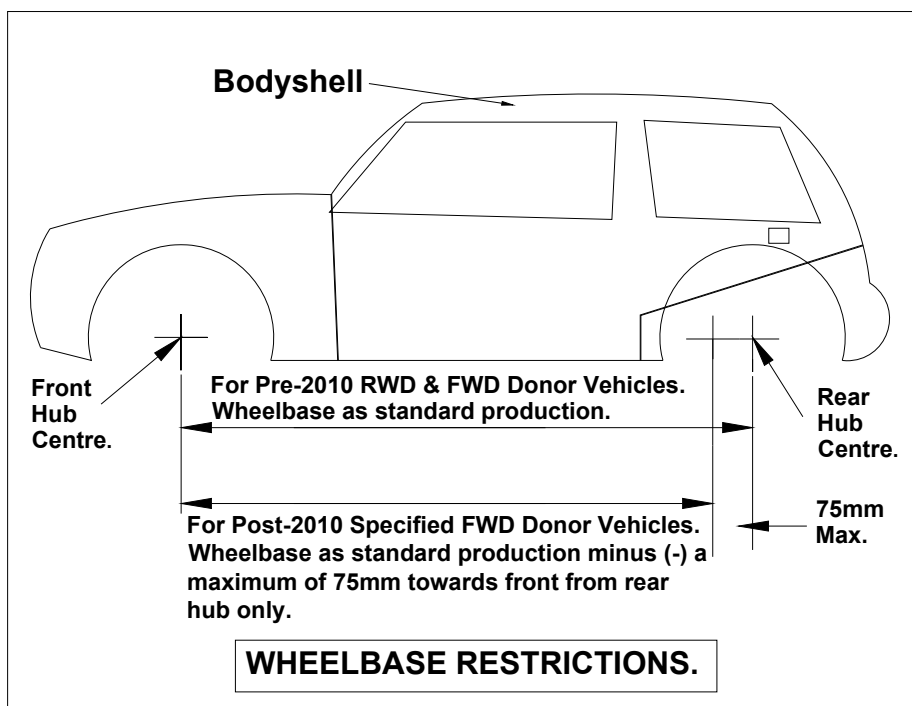
gii

FIGURE 24 HARNESS STEEL EYE BOLT MOUNTING PLATE
ROLL BAR FIXINGS



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FIGURE 25 VEHICLE WHEELBASE RESTRICTIONS.
N.B. Specified post-2010 donor vehicle = Ford Fiesta Mk6 only.



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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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