

100 LAP DERBY & 3 HOUR TAG TEAM ENDURO SPECIFICATION BOOK 2023 UPDATE



Endorsed by Alexandra & District Speedway Inc. for Extraneous Events

1 – PREAMBLE	4
2 – LICENCING and INSURANCE	4
3 – GENERAL SPECIFICATIONS	4
3.1 – <i>CONSTRUCTION</i>	4
3.1.1 – Numbers	5
3.1.1.1 – Roof Numbers	5
3.2 – <i>DRIVER SAFETY</i>	5
3.2.1 – Protective Clothing	5
3.2.1.1 – Race Suit	5
3.2.1.2 – Underwear	6
3.2.1.3 – Boots, Gloves & Balaclavas	6
3.2.1.4 – Helmet	6
<i>ECE 22-05 Labelling</i>	6
3.2.1.5 – Head & Neck Restraint	8
3.2.1.6 – Eye Protection	9
3.2.1.7 – Communicator	9
3.2.2 – Seat	9
3.2.2.1 – Seat Belts	10
3.2.3 – Fire Extinguisher	12
3.2.4 – Window Net	12
3.2.4.1 – Padding	12
4 - CLASS SPECIFICATION	13
4.1 – <i>CARS</i>	13
4.2 – <i>ROLL CAGE</i>	13
4.2.1 – Material Sizes & Construction.	13
4.2.1.1 – Subframe	14
4.2.1.2 – Main Brace ‘B’ Pillar To ‘B’ Pillar	14
4.2.1.3 – Top/Lower Windscreen Bar & Dash Bar	14
4.2.1.4 – Nascar Door Bars	14
4.2.1.5 – Anti Spear Plate	14
4.2.1.6 – Subframe Cross Braces	14
4.2.1.7 – Centre Roof Bar	15
4.2.1.8 – Centre Windscreen Bar	15
4.2.1.9 – Mesh Screen	15
4.2.1.10 – Foot Protection Bar	15
4.2.1.10.1 – Foot Protection Brace Bar	15
4.2.1.11 – Head Plate	15
4.2.1.12 – Scatter Shield	16
OPTION B ROLL CAGE – As detailed online by Speedway Sedans Australia	17
4.2.1.13 – Bumper Bars	22
4.2.1.13.1 – OEM Bumpers	22
4.2.1.13.2 – CHS Bumpers	22
4.2.2 – Fuel Tank Protection	23
4.2.2.1 – Fuel Protection Bar Work - Option A	23
4.2.2.2 – Fuel Protection Bar Work - Option B	25
4.2.3 – Optional Bar Work	26

4.2.3.1 – Rub Rails Optional	26
4.2.3.2 – Optional Engine Bay Bar Work	27
4.3 – <i>BODIES</i>	28
4.4 – <i>SUSPENSION</i>	28
4.5 – <i>STEERING</i>	29
4.6 – <i>BRAKES</i>	29
4.7 – <i>ENGINES</i>	29
4.7.1 – Carburettors & Injection	29
4.7.2 – Cooling System	30
4.8 – <i>BATTERY</i>	30
4.8.1 – Battery in Cabin Area	31
4.9 – <i>KILL SWITCH</i>	32
4.10 – <i>TRANSMISSION</i>	32
4.11 – <i>TAILSHAFT</i>	32
4.12 – <i>DIFFERENTIAL</i>	32
4.13 – <i>EXHAUST SYSTEM</i>	32
4.14 – <i>FUEL TANK</i>	33
4.15 – <i>TYRES</i>	34
4.16 – <i>WHEELS</i>	34
4.17 – <i>BALLAST</i>	35

1 – PREAMBLE

ALEXANDRA & DISTRICT SPEEDWAY INC.

100 Lap Derby and 3 Hour Tag Team Enduro Specifications.

These Regulations and Specifications apply to all Owners, Driver's, Pit crews, Officials and Clubs engaged in the promotion, conducting, competing and/or presentation of 100 Lap Derby and 3 Hour Tag Team Enduro special events.

This book must be read in conjunction with Speedway Australia Racing Rules & Regulations & VSC Inc. approved Special Regulations and/or Notices issued by the VSC Inc. from time to time.

Ignorance of these Regulations and Specifications, and Notices shall be deemed as No Defence regarding breaches and/or appeals of same.

Where there is a difference of opinion between the Scrutineer, Machine Examiners, Officials, Owner/Driver regarding the interpretations of any specification or regulation within this book then that matter shall be resolved by the Chief Scrutineer Alexandra and District Speedway Inc.

If 'IT' is not in the book, inquire for prior clarification or approval before construction or implementing.

2 – LICENCING and INSURANCE

Only Senior licensed persons may participate as a driver or passenger.

Insurance held with Accident Fund Insurance or Speedway Australia Insurance is compulsory for drivers and passengers.

Ambulance membership is compulsory for drivers and passengers.

3 – GENERAL SPECIFICATIONS

3.1 – CONSTRUCTION

To be of professional standard. All materials used must be of good quality.

Bolts are not to be used through structural tubing unless a welded sleeve is provided.

All material sizes quoted are minimum unless a maximum is stated.

Definition of material:

- CHS Circular Hollow Section
- RHS Rectangular Hollow Section
- WT Wall Thickness
- OD Outside Diameter

AS 1163 G.200: Australia Standard 1163 for structural steel tubing grade 200.

For clarity in printing Imperial sizes changed to Metric have been rounded off the nearest full millimetre. These sizes will continue to be accepted (i.e.: 1.25" = 31.75mm rounded to 32mm)

No self-drilling screws (Tek Screws) permitted on external panels.

3.1.1 – Numbers

All vehicles are to be presented for racing in good condition, with paintwork, sign writing and a number to be visible when car viewed from the front: i.e. roof number or sun visor.

Cars must have a front and rear facing number min 75mm x 100mm to be a contrasting colour.

Driver's name/s to be on roof above driver's door or sun visor, min 50mm lettering.

3.1.1.1 – Roof Numbers

Roof numbers* must be on vehicle prior to scrutineering.

The roof identification number shall be a metal plate, 30cm (300mm x 300mm) square, with a 5cm (50mm) right angle fold at the bottom where 2 holes, at 20cm centres shall be drilled to take 6mm bolts.

The plate shall be bolted vertically on the roof of the vehicle at an angle from the left-hand front to the right hand rear wheel arch, or parallel with the side of the car, depending on the track lap scoring requirements.

The plate must be black background & white number/s in a plain font 200mm high.

Roof numbers will be allocated by the club after nomination.

***SPECIAL NOTE:** For the 3 Hour Tag Enduro Race ONLY - Where a team runs 2 cars, cars must be marked Car A & Car B for easy identification by scrutineers & track officials. Cars should be marked using 100mm high lettering in contrasting colour placed on windscreen banner within 200mm of A pillar.

3.2 – DRIVER SAFETY

All protective clothing and safety equipment must be used and/or worn in the approved and accepted manner. Flame protection (suit) plus thermal protections (underwear) equal driver protection.

The only IMPACT RACING safety attire accepted is to have relevant SFI label with date of manufacture 2009 or later on label.

No alcohol/illicit drugs are to be consumed within twelve hours prior to racing by driver. No alcohol permitted in the pit area. Drivers, passengers, or crews must not exceed .02% blood alcohol level at any time during scrutineering or race meeting, as per racing rules and regulations

3.2.1 – Protective Clothing

3.2.1.1 – Race Suit

Driving suit must meet minimum standard of either SFI 3.2A/1 or FIA 8856-2000. Suit to be snug fit at ankles, collar, and cuffs.

Must be fastened at all times whilst in car. Suit to be in a clean and tidy condition and free of holes.

NOTE: Two-piece suits are NOT PERMITTED.

No synthetic material to be worn against skin. (Compulsory one-way communicator earpiece and lead allowed).

No jewellery to be worn.

3.2.1.2 – Underwear

Full length underwear meeting minimum standard of either SFI 3.3/FIA 8856-2000 ‘MUST’ be worn by all drivers and passengers.

Approved underwear must be worn regardless of type of race suit.

Socks meeting minimum standard of either SFI 3.3/FIA 8856-2000 ‘MUST’ be worn by all drivers.

Socks must be higher than bottom cuff of under wear.

3.2.1.3 – Boots, Gloves & Balaclavas

Boots, gloves, and balaclavas are compulsory in all divisions and must meet minimum standard of SFI 3.3/FIA 8856-2000.

Balaclava must cover the nose to prevent inhalation of flames and must be long enough to fit inside of or cover the collar of the race suit.

Gloves must reach driving suit cuff. Gloves cannot be modified in any way (e.g. Removing thumb).

Boots must cover ankles and be high enough to permit coverage by the driving suit cuff.

3.2.1.4 – Helmet

Driver & passengers must wear the approved and correctly fitting helmet. The helmet must meet minimum standard of either.

1. 1.1 AS/NZS 1698:2006 or UN ECE 22.05 standard. Must be no older than 5 years from date of manufacture.
- 1.2 Snell SA-2020
- 1.3 Snell SA-2015. Must be no older than 10 years from date of manufacture
- 1.4 FIA 8858-2010. Must be no older than 10 years from date of manufacture. *FIA 8858-2010 NOT VALID AFTER 31/12/2023***
- 1.5 FIA 8859-2015. Must be no older than 10 years from date of manufacture.
- 1.6 FIA 8860-2010. Must be no older than 10 years from date of manufacture.

Junior drivers only, the following helmets are also approved for use.

1. SFI24.1 Must be no older than 10 years from date of manufacture
2. CMR2016 Must be no older than 10 years from date of manufacture.
3. CMS2016 Must be no older than 10 years from date of manufacture.

SFI suggested helmet life is four years. However, if helmet has signs of misuse, neglect or damage, Scrutineer will note helmet serial number in log book. If the helmet is found in use, Chief Steward is to be notified under Rule 6.2. Chin cups are not permitted. Inspection and approval from Technical Committee to be obtained before painting.

ECE 22-05 Labelling

Compliance with ECE 22-05 means it is marked in accordance with Clause 5.1.9 of ECE 22-05

This requires a label sewn onto the chin-strap (“retention system”) that carries quite specific (and very informative) information.



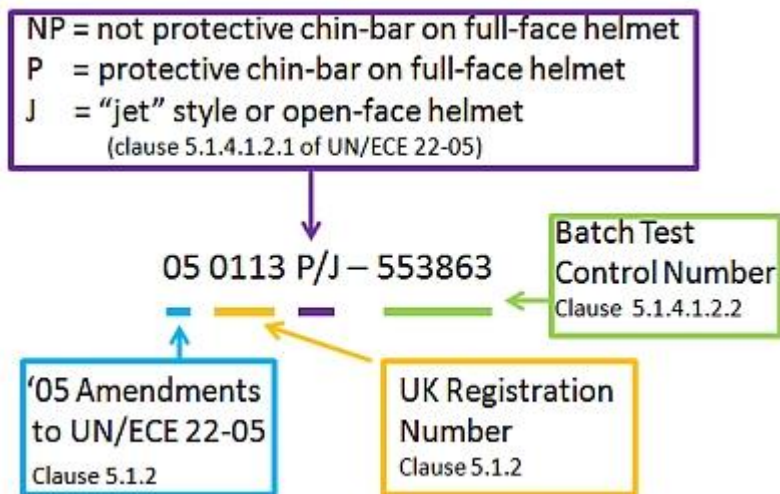
The label above is an example of a compliance label for ECE 22-05

In the circle it shows “E11”

E11 = United Kingdom

i.e. this helmet was homologated by the British Government.

Of interest, this is a “flip up” helmet that achieved homologation as BOTH an open face and full-face; the chin-bar can rotate to a locked position at the rear and does not form a “protrusion”.



The above tells us who to contact for full compliance test details of THIS helmet (for proof of design and proof of production reliability).

The Batch Test Control Number links THIS helmet to the particular production batch it came from and the batch tests for that batch. It’s under regulatory control.

If it doesn't have the chin-strap tag with the above details, it's not UN/ECE 22-05 compliant, despite any other labels.

On some ECE helmets, the label is behind a sheathing over the chin-strap. To read the label, the sheathing can be pushed back while holding the strap with the other hand.

E numbers

1 for Germany, 2 for France, 3 for Italy, 4 for the Netherlands, 5 for Sweden, 6 for Belgium, 7 for Hungary, 8 for the Czech Republic, 9 for Spain, 10 for Yugoslavia, 11 for the United Kingdom, 12 for Austria, 13 for Luxembourg, 14 for Switzerland, 15 (vacant), 16 for Norway, 17 for Finland, 18 for Denmark, 19 for Romania, 20 for Poland, 21 for Portugal, 22 for the Russian Federation, 23 for Greece, 24 for Ireland, 25 for Croatia, 26 for Slovenia, 27 for Slovakia, 28 for Belarus, 29 for Estonia, 30 (vacant), 31 for Bosnia and Herzegovina, 32 for Latvia, 33 (vacant), 34 for Bulgaria, 35 (vacant), 36 for Lithuania, 37 for Turkey, 38 (vacant), 39 for Azerbaijan, 40 for The former Yugoslav Republic of Macedonia, 41 (vacant),

Below, IS **NOT** an ECE 22-05 compliance label



3.2.1.5 – Head & Neck Restraint

Approved head and neck restraints (e.g. "Hans" type devices) can be used in lieu of horse collar neck brace. The horse collar must be correctly fitted to suit the driver and helmet used, leaving a nominal 15mm gap to prevent leverage injuries.

A horse collar neck brace is to be high of density foam covered with Nomex, wool or similar fire-retardant material and MUST be SFI approved

Head and neck restraint devices must only be fitted to the helmet by authorized installer as directed by the manufacturer and must be SFI 38.1 and or FIA approved.

5-YEAR REPLACEMENT OR RECERTIFICATION FROM DATE OF MANUFACTURE ON SFI 38.1 HEAD AND NECK RESTRAINTS.

3.2.1.6 – Eye Protection

Suitable eye protection must be worn i.e. visor or goggles.

If a driver is required to wear optical glasses under any requirement for license under Vic Roads licensing and/or Medical Practitioner stipulates that the optical glasses must be worn for reason of VSC Inc. licensing, then that Driver must wear those glasses whilst competing and any such glasses must be made of non-splintable type material.

3.2.1.7 – Communicator

Operating one-way communicator is to be presented at scrutineering.

3.2.2 – Seat

A 'Purpose Built' professional standard one-piece, **minimum 2mm material thickness steel, minimum 3mm material thickness aluminium or SFI approved in date composite** bucket type seat incorporating a substantial headrest, must be used. The use of mass produced, competition based alloy seats with lightening holes is recommended. Eg.; Kirkey / Butler. All holes are to be swaged as per manufacturer's specifications. The use of one off type sets without holes is permitted subject to VSC Technical Committee approval.

Minimum 50mm clearance Helmet to head plate / roll cage bars. Concave seat to support back to minimum of TOP of shoulder height and width.

Top of headrest to be at least 50mm above helmet to seat contact area and to be within easy contact of helmet. Minimum width mm.

Seat base to be mounted to roll cage sub frame at a minimum of two (2) points using 8mm bolts and minimum 40mm diameter body washers.

Seat back to be braced to and attached to roll cage approximately 75mm below shoulder height using minimum of two 8mm bolts and minimum 38mm diameter body washers.

Lateral (sideways) support must be given to hips and above waist.

Front of seat under legs to be raised and rolled.

Cut-outs for belts to be suitably grommeted.

Seats may be padded and covered; the covering being securely attached. Maximum padding thickness 50mm.

Adjustable seats to be approved by VSC Inc. Technical Committee via Zone Scrutineer or Technical Representative and endorsed in logbook.

If passenger seat fitted and no passenger in race, seat belts and window net must be removed or correctly buckled or attached.

3.2.2.1 – Seat Belts

An approved type racing harness must be fitted. Must be SFI or FIA approved.

Seat belt life is a maximum of 2 years from date of manufacture or as per expiry date noted on the attached SFI tag.

Five or six point 3" harness mandatory and must be a lever latch type, narrow OEM crotch strap permitted.

Harness to be fitted to manufacturer's specifications or for existing fitment the following guidelines.

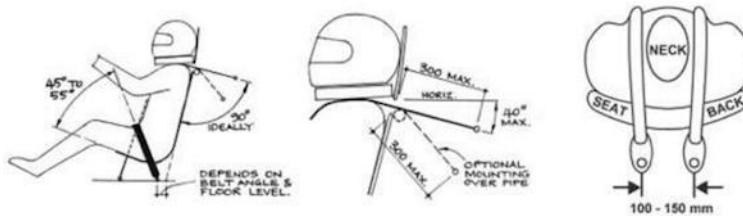
SFI or FIA approved head and neck restraint (e.g. "Hans" type devices) seatbelts permitted.

If shoulder seat belts do not run through seat there must be provision to stop belts from slipping off shoulders.

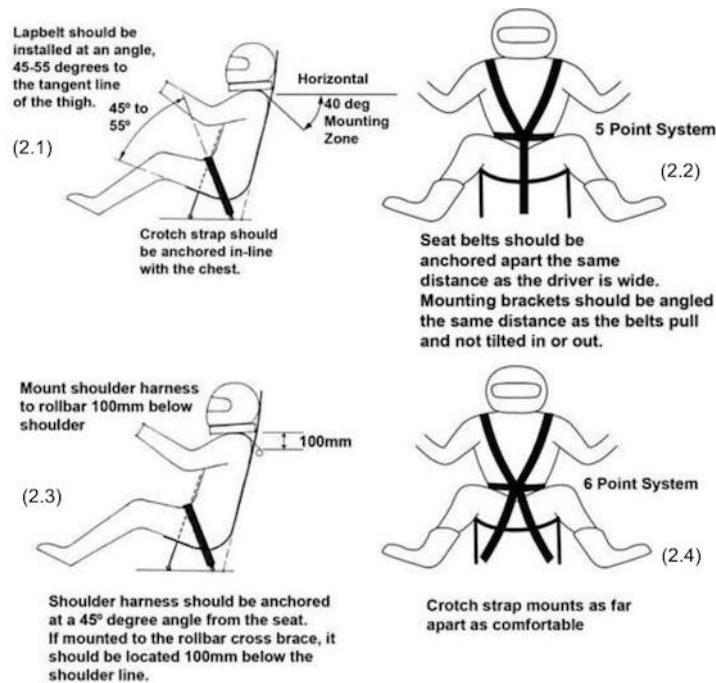
Seat belt mounting brackets must be on roll cage. Chassis or cross frames, not on sheet metal.

Seat belt bolts 'MUST' be Minimum 10mm grade 8. (Standard manufacturer's bolts and nuts permitted i.e. Simpson, G Force). Maximum 300mm seat-to-seat belt mounting points. D shackles are NOT permitted.

Additional seat belt mounting points may be needed for adjustable seats.



Installation of Restraint System Fig.1



Installation of Restraint System Fig.2

In order for the driver restraint system to be fully effective, considerable thought must be given to location of mounting points and to proper installation. Many installations comply only with the letter of the rule with no understanding of the needless injury to the driver.

The mounting points should be solid and should remain so even if the vehicle is deformed due to an accident.

The mounting points should also not put undue strain or twist on the belt system hardware.

The lap belt should be positioned so it rides across the solid pelvic area and not the soft stomach area or down on the thighs. The shock absorbing ability to protect internal organs makes it the preferred location for the belt. See image above.

The shoulder harness should be mounted to prevent the driver from moving upward, out of the seat, in the event of a rollover. The required minimum distance from the top of the driver's helmet to the top of the roll bar does not leave much leeway for the shoulder harness, to prevent the helmet from striking the roof in the event of a rollover. The shoulder harness is the major means of preventing injury in such an accident.

Anti-Submarine straps serve two purposes.

To secure the lap strap down across the drivers' hips, so in the event of an accident, it is not pulled up across the stomach by the shoulder straps. To prevent the driver from sliding forward and out of the harness, see Fig.2.1 and Fig.2.2.

For extra assurance, a double strap anti-submarine belt can be used, see Fig.2.3 and Fig.2.4

When the driver is seated in a semi-reclining position a six-point system (two anti-submarine or crutch straps) is preferable. Most drivers find two anti-sub strap positions more comfortable regardless of the type of car.

In many instances, the anti-submarine straps are mounted much too far forward of the seat. This practice could cause injury as the body can slide partially out of the seat before being restrained when the strap contacts the groin. It is much more practical to cut a slot in the seat bottom so the anti-submarine strap can be anchored in line with the chest.

Because of the difference, often vast, in competition vehicles, 'standard' method of mounting is impractical.

Good judgment and common sense in inspecting restraint system mounts is needed.

Safety equipment is often neglected in favour of performance equipment, but its proper operation when the need arises is essential to survival.

The belts must be in good condition – no fraying, tears, fading etc.

3.2.3 – Fire Extinguisher

On board fire extinguisher is optional. It must be securely mounted and be of the correct type for the fuel being used.

3.2.4 – Window Net

Window Nets are Mandatory, and **MUST be SFI approved** with no signs of wear, fading, paint or welding splatter. **(Window Net life is a maximum of 2 years from date of manufacture or as per expiry date noted on the attached SFI tag.)**

Maximum Window net opening to be 75mm x 75mm x 19mm wide webbing.

Window net to be securely attached to roll cage 'NOT' car body and to cover 60% of side window area.

Not to be made of flammable material i.e. plastic.

Window net 'MUST' be fixed top and bottom using a minimum 25mm x 3mm flat steel or 8mm steel rod through window net. Original window net manufacturer supplied fitting hardware permitted.

Tubing at base of net fixed with quick release pins

No Tek Screws, pop rivets or cable ties permitted to fit window net.

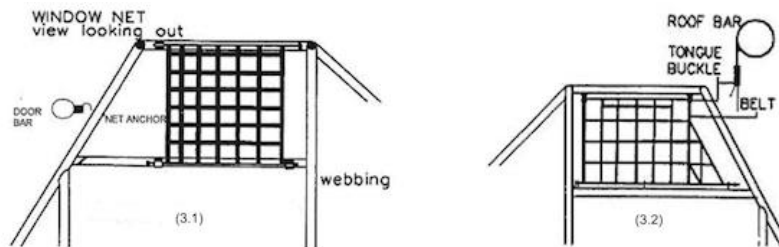


Fig.3

3.2.4.1 – Padding

All projections that may present a danger to driver/passenger must be suitably padded.

4 - CLASS SPECIFICATION

4.1 – CARS

A 100 Lap Derby/3 Hour Enduro class race car is built from a hard-top 2/4 door Sedan, Ute, Station Wagon or Chassis car.

Four-wheel drive and/or four-wheel steer models are not permitted.

Chassis type race cars with full-length chassis rails (Super sedans) must comply with current regulations.

4.2 – ROLL CAGE

Minimum roll cage to meet either Option A Current VSC class Spec **OR** Option B Speedway Australia Class Spec

All bars in diagrams are compulsory. All cars to be fitted with complete Roll Cage built to the NASCAR design as used in other classes within the VSC Inc. or Option B to Speedway Australia Class Standard

- a} The roll cage in all cars is to prevent the collapse of the cabin area under impact. Roll cage, to enclose the driver/passenger, to full width and full height of the cabin area. The roll bars are to constitute a cage type framework, braced fore and aft. The cage must extend from behind seats forward to the windscreen area and incorporate protection for the drivers/passenger's feet.
- b} Aluminium based materials NOT permitted.
- c} The rear main hoop and main roll cage bars will each be made of one continuous length of tubing, with smooth continuous bends and no evidence of crimping, wall failure or significant weakening. All bends to be made using a pipe bender with the correct size former.
- d} Galvanized tubing or welding over threaded tubing is not permitted in any structure bar work.
- e} Water pipe fittings or malleable fittings are not permitted.
- f} Roll cages built using other than fusion-welding techniques will not be accepted. Gussets on welded joints may be required at the scrutineer's discretion.
- g} Main roll cage hoop to be within 50mm of sides of roof at narrowest point. Top windscreen bar to be within 50mm of windscreen at front roll cage leg on side elevation.
- h} Front roll cage legs to follow "A" pillar line and be within 300mm from "A" pillar side elevation and within 75mm on front elevation at original top door line.
- i} NOTE for: cars with severe rake of the windscreen. If the angle of roll cage "A" pillar bar to be of not less than 45 degrees down from roof bar or quarter vent bar may be needed.
- j} Quarter vent bars must be as close as practicable to the first upright of the NASCAR bar work.
- k} Roll cage legs shall be welded to the top of sub frame within 50mm of door pillars on front elevation. Subframe to be of tubular or angle section running fore and aft, welded, or bolted to the floor pan/sills using at least four 12mm steel bolts through the sub frame and using 10mm x 100mm plates under the floor, or four x 50mm fillet welds.

4.2.1 – Material Sizes & Construction.

All roll bar material must be of good quality mild steel, AS1163, minimum G200. Minimum 38mm OD x 3mm WT CHS. The use of any material other than low carbon steel for the construction of roll cage must have VSC Inc. Technical Committee approval.

4.2.1.1 – Subframe

Tubular min 38mm x 3mm WT CHS or 50mm x 38mm x 3mm WT RHS or Angle minimum 50mm x 50mm x 5mm

4.2.1.2 – Main Brace 'B' Pillar To 'B' Pillar

A minimum of a one-piece diagonal brace, minimum 38mm OD x 3mm WT CHS, will be fitted in the main roll cage hoop behind the drivers head down onto left hand roll cage leg directly above subframe brace. A cruciform type brace may also be used (mandatory for passenger) minimum 32mm OD x 3mm WT CHS, driver's side top down to left hand roll cage leg to remain one piece.

4.2.1.3 – Top/Lower Windscreen Bar & Dash Bar

Minimum 38mm OD x 3mm WT CHS

4.2.1.4 – Nascar Door Bars

Nascar door bars on driver's side: three horizontal side bars with only one bend at each end curving out to the door skin, are to be placed between front and rear cage legs. Evenly spaced between windowsill and cage subframe. One of the 3 horizontal door bars may run straight through e.g. from front wheel arch to rear wheel arch and then have 2 separate pieces of min 38mm x 3mm turning at 90deg to the Nascar bar connecting on to the a and b roll cage pillar bars.

Door B pillar can be removed or notched (optional) to accommodate bar work.

A minimum of two vertical spacer bars, evenly spaced between front and rear roll cage legs, are to be fitted between the cage sub frame and top horizontal bar. Two door vehicles or vehicles with excessive roll cage length between the front and rear legs of the roll cage, must use three vertical bars and a quarter vent bar fitted above the first vertical bar.

Passenger side minimum two bars fitted between front and rear roll cage legs, one must be horizontal within 75mm at windowsill height and one diagonal NASCAR bars may be used in lieu of diagonal brace.

LEFT HAND SIDE, PASSENGER SIDE, TO BE MIRRORED OF DRIVERS SIDE IF A PASSENGER SEAT IS FITTED. Including foot protection, brace bar, anti-spear plate and head plate.

4.2.1.5 – Anti Spear Plate

An 'ANTI SPEAR' deflector plate, 3mm steel or 5mm alloy, (NOT to be lightened by drilling) to be fitted to drivers side, from floor-line to windowsill bar, forward of the first vertical door bar to the front leg of the roll cage, and must be fitted outside the roll cage. If not welded one-piece door plates to be bolted on using a minimum of 6 – 50mm x 50mm x 3mm steel tabs welded to Nascar bars and bolted using 8mm high tensile bolts with no protrusions. If individual piece is used, then a minimum of 4 – 50mm x 50mm x 3mm steel tabs welded to Nascar bars and bolted using 8mm high tensile bolts to each piece with no protrusions. Must be mirrored on passenger side bar work if passenger seat fitted.

4.2.1.6 – Subframe Cross Braces

Minimum of two sub frame cross braces at roll cage legs, minimum either 38mm OD WT CHS or 35mm x 35mm x 3mm RHS, front brace to be within 300mm forward or rearward of front roll cage leg, and if greater than 100mm either way of roll cage leg must have 45 degree brace bar returned back to roll cage sub frame using roll cage material.

4.2.1.7 – Centre Roof Bar

38mm max, 32mm min OD x 3mm WT CHS.

(Chassis cars can use diagonal bar in place of centre roof bar, but must have head plate)

4.2.1.8 – Centre Windscreen Bar

Centre windscreen bar 38mm max, 25mm min x 3mm WT CHS.

4.2.1.9 – Mesh Screen

MESH SCREEN will be securely attached using either metal hose clamps, bolts and or weld to roll cage and/or metal body, in front of the driver, covering drivers side opening, or whole windscreen opening if passenger seat fitted. Maximum mesh size 50mm x 50mm. Minimum gauge 3mm or 25x25x2.5mm

4.2.1.10 – Foot Protection Bar

Foot protection must be provided for driver and passenger, if passenger seat fitted, as per diagram. Minimum size bar work to be 32mm OD x 3mm WT. Height of pipe to be minimum 300mm and brought forward as far as practicable and must cover foot with accelerator at idle position.

May be filled with 3mm plate.

The Foot Protection bar max measurement from roll cage leg to forward of foot protection bar cannot exceed 450mm

Fully depressed pedals cannot protrude past foot protection bar.

When fully depressed, if pedals do not protrude past roll cage leg then foot protection bar is not required.

4.2.1.10.1 – Foot Protection Brace Bar

A mandatory foot protection brace bar of a minimum 25mm x 3mm CHS fitted between the front top half of the foot protection bar and bar work to the left on the driver's side (preferably the dash bar).

To be mirrored if passenger seat is fitted.

4.2.1.11 – Head Plate

A head plate is compulsory for driver and passenger and must be welded on a minimum of three sides. The head plate to be of 3mm mild steel sheet. Minimum clearance of 50mm from top of helmet to Headplate

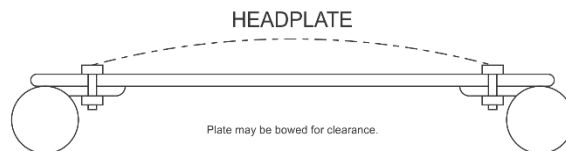


Fig.4

Bolt-in roof plate optional. Removable head plate to be 5mm aluminium sheet or 3mm steel, 25mm x 3mm FMS strip to be welded to main hoop, top windscreen bar, centre roof bar and side roof bar. 10 of 50mm x 50mm x 3mm tags acceptable.

Plate to be mounted, from above, with 10 x 8 mm diameter high tensile bolts, 3 each side, 2 front, 2 rear. Heads of bolts to be downwards, i.e. no projections.

4.2.1.12 – Scatter Shield

A scatter shield of 150mm minimum wide x 3mm minimum steel or 150mm minimum wide x 5mm aluminium must be securely fitted to the bell housing or the inside or outside of engine fire wall and/or floor to extend from right floor to left floor and cover the clutch housing. So as to protect the driver and passengers' limbs from a 'clutch explosion'. When an engine is transverse the scatter shield must also cover the cabin side of clutch housing from top of housing to floor level. Scatter shields to be securely mounted to floor and/or firewall. Preferably braced to roll cage under dash bar. Scatter shields **MUST** be mounted as near as possible to the fire wall

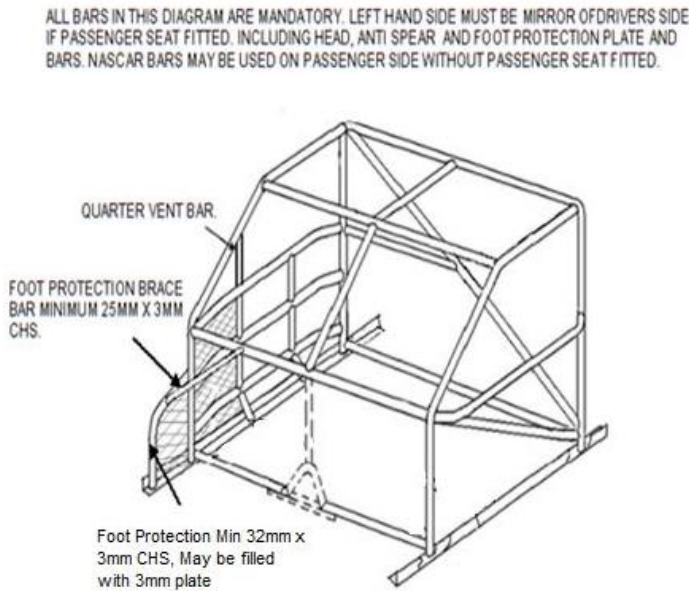


Fig.5

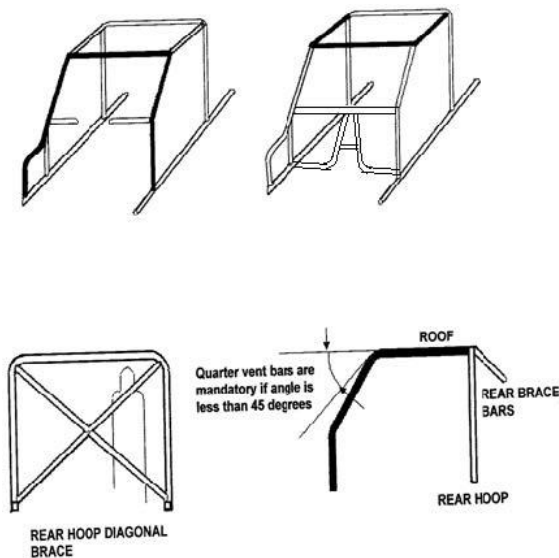


Fig.6

OPTION B ROLL CAGE – As detailed online by Speedway Sedans Australia

GENERAL

- a) The roll cage is to provide a safe enclosed environment for the driver and is intended to prevent the collapse of the cabin area under impact.
- b) The roll cage is to fully enclose the driver with the roll bar tubing that constitutes a cage type framework, braced fore and aft.
- c) All bar work must be entirely inside the OEM glassed area of the cabin.
- d) The cage must extend behind the driver's seat and forward to the windscreen area and incorporate adequate foot protection.
- e) All bends to be made using a bender with the correct size former using a cold working process with no evidence of crimping, wall failure or significant weakening. The centreline bend radius must be 3 times the tube diameter. If during the bending process the tubing is ovalized the ratio of minor to major diameter must be 0.9 or greater.
- f) All bars to be suitably notched to accommodate correct assembly of roll cage.
- g) All welding is to be of a high quality with adequate penetration using only gas shielded arc welding techniques. E.g. mig or tig. All joints to be fully welded.
- h) Sonic Testing to be performed only on bare/unpainted surfaces and on a straight section of tube. It is the owner's responsibility to remove paint/powder coating if required. (Sonic Test at not less than 2.40mm ABSOLUTE)
- i) For Production Sedans and Street Stocks with Optional Passengers: Roll cage left hand side must mirror the right hand side and have full cruciform. Passenger handle for support is optional.

MATERIAL SPECIFICATION

- a) Please refer to Minimum Dimensions Table below for bar size and types.
- b) Cold Drawn Seamless (CDS) mild steel tube (CHS) with a minimum tensile strength of 350 MPA. Unless otherwise specified.
- c) Where RHS is permitted all tube to be of AS1163 standard mild steel with a minimum tensile strength of 350 MPA.
- d) No galvanising on any tube allowed.
- e) All tube must display good elongation and welding properties.

MINIMUM DIMENSIONS TABLE

Bar #1	Main Hoop Bar	44.45 x 2.6mm	CHS
Bar #2	Roof Hoop Halo Bar	44.45 x 2.6mm	CHS
Bar #3	Front A Legs / A Pillar Bar	44.45 x 2.6mm	CHS
Bar #4	Centre Roof Bar	38 x 2.6mm	CHS
Bar #5/6	Main Hoop Centre Spreader Bar	38 x 2.6mm	CHS
Bar #6/5	Seat Back/Shoulder Harness Bar	38 x 2.6mm	CHS
Bar #7	Main Hoop Diagonal Bars	38 x 2.6mm	CHS
Bar #8	NASCAR Door and Dropper Bars	38 x 2.6mm	CHS
Bar #9	Passenger Side Door Bars	38 x 2.6mm	CHS
Bar #10	Lower Windscreen Dash Bar	38 x 2.6mm	CHS
Bar #11	Centre Windscreen Bar (14/09/19)	25 x 2.6mm	CHS

Bar #12	Rearward Brace Bars	38 x 2.6mm	CHS
Bar #13	Foot Protection Bar	38 x 2.6mm	CHS
Bar #14	Foot Protection Support Bar (14/09/19)	25 x 2.6mm	CHS
Bar #15	Roll Cage Sub Frame Bar – these 3 choices are the only size and types of material accepted	44.45 x 2.6mm or 40 x 40 x 3.0 mm or 50 x 50 x 2.5mm	CHS RHS RHS
Bar #16	Lower Spreader Bar – Front	38 x 2.6mm	CHS
Bar #17	Lower Spreader Bar – Front Brace	38 x 2.6mm	CHS
Bar #18	Lower Spreader Bar - Rear	38 x 2.6mm	CHS
Bar #19	Lower Windscreen / Dash Bar Support - optional	38 x 2.6mm	CHS
Bar #20	Seat Base Mounting / Harness Mounting Bar	38 x 2.6mm	CHS
Bar #21	Rear Chassis Sub Frame Rail	44.45 x 2.6mm or 38 x 2.6mm or 40 x 40 x 2.5mm	CHS CHS RHS
Bar #22	Front Chassis Sub Frame Rail - optional	38 x 2.6mm or 40 x 40 x 2.5mm or 50 x 25 x 3mm	CHS RHS RHS
Item #23	Additional / Optional Roll Cage Supports / Bracing	25 x 2.6mm Minimum	CHS

POINT A	The point where top NASCAR door bar (Bar #8), A pillar leg (Bar #3) and lower windscreen dash bar (Bar #10) intersect – Refer Fig 3 (ii)
POINT B	The point where the top NASCAR door bar (Bar #8), Main Hoop (Bar #1) and Main Hoop Centre Spreader Bar (Bar #5) intersect – Refer Fig 3 (ii)
POINT C	The point where sub frame bar (Bar #15), base of A pillar leg (Bar #3) and lower spreader bar – front (Bar #16) intersect – Refer Fig 3 (ii)

1. **Main Hoop Bar:**

Bar #1 The rear main hoop will be made of one continuous length of tubing. See Fig 3(i). Hoop to be within 50mm of sides of roof at the narrowest point, be within 50mm of the inside line of the 'B Pillar' measured at point 'B' of Fig 3 (i) and be completely inside the body line. The base of the hoop will be fitted square in the car. If the Main Hoop requires bending to meet the 50mm requirement at point 'B' then the bend can only be formed within 50mm of this point. The distance between the rear of the main hoop and the front of the A pillar front leg at the intersection with the sub frame rail and at rear of the main hoop and front A pillar leg at the intersection of top NASCAR bar to be minimum of 900mm.

2. **Roof Hoop Halo Bar:**

Bar #2 The roof hoop halo will be formed from one continuous length of tubing; or alternately be replaced by using one continuous length to form the front A pillar legs, which then will continue back to the Main Hoop Bar, with a top windscreen bar being fitted to complete the hoop. The Roof Hoop Halo Bar is to be within 50mm of the roof at sides and as close as practical to the windscreen opening and be welded to the main hoop to form that halo or hoop around the drivers head.

3. **Front A Legs/A Pillar bar:**

Bar #3 Two front legs shall be formed from one continuous length of tubing and be welded to the sub frame rail (Bar #15) at the bottom and front corners of the roof hoop halo at the top or if using the second option for the Roof Hoop Halo Bar, welded to the Main Hoop Bar (Bar #1). The A pillar part of the front legs must not be flatter/less than 45 degrees (This angle is measured between 'A Pillar/Front Leg of roll cage and top NASCAR bar) and be no further than 300mm (250mm for Junior Sedans) behind and 50mm inwards of the OEM door opening at points A & C. Refer Fig 3 (i). When bending this bar to meet the sub frame rail the bend must be within 50mm of Point A. Refer Fig 3 (i).

4. **Centre Roof Bar:**

Bar #4 A one piece centre roof bar to be welded between the main hoop and the roof hoop, in the centre line of the roll cage.

5. **Main Hoop Centre Spreader Bar:**

Bar #5 A one piece straight bar is to be fitted to the Main Hoop within 50mm of top NASCAR bar height at Point B. Refer to Fig 3 (i). To be connected to the other side of the Main Hoop within 50mm of the top passenger NASCAR door bar. This bar may act as the Seat Back/Shoulder Bar (Bar #6).

6. **Seat Back / Shoulder Harness Bar:**

Bar #6 A one piece mounting bar to be fitted to mount the seat and seat belts, to be positioned so that the belts are anchored a maximum of 300mm from the point at which the shoulder belts pass through the back of the seat. Top seat mount to be no further than 75mm lower than this bar.

7. **Main Hoop Diagonal Bar:**

Bar #7 A two piece diagonal brace will be fitted in the roll cage behind the driver's head, within 250mm of the bend and down to the point where it intersects the Main Hoop Centre Spreader Bar (Bar #5). From this point the second piece in the same plane and angle as the top diagonal brace will follow down to the point where the hoop joins the LHS Roll Cage sub frame base. Refer Fig 3 (i). A second diagonal brace may be fitted and may need to be in 3 pieces. All braces must intersect with the Main Hoop Centre Spreader Bar.

8 NASCAR Door and Dropper Bars:

Bar #8 On the driver's side, three one piece horizontal bars that will have a deflection/bend at each end of the bar which allows the NASCAR bars to be positioned towards the door skin and placed between front and rear cage legs, evenly spaced between window sill and roll cage sub frame. Top NASCAR door bar to be within 50mm of the window opening. The centre or bottom horizontal bar may run straight through, from front wheel arch to the rear wheel arch, and then have two separate pieces of 38 x 2.6mm CHS turning to the NASCAR bar connecting to the roll cage Main Hoop Bar and to the 'A Pillar' leg. There will be a minimum of two vertical dropper bars as close to evenly spaced as possible between the front leg, and the rear hoop for each of the openings created by the NASCAR bars, making a minimum of six vertical bars to be fitted. Refer to Fig 3 (i). OEM Door B pillar may be notched ONLY; not removed to allow fitment of bar work.

9 Passenger Side Door and Dropper Bars:

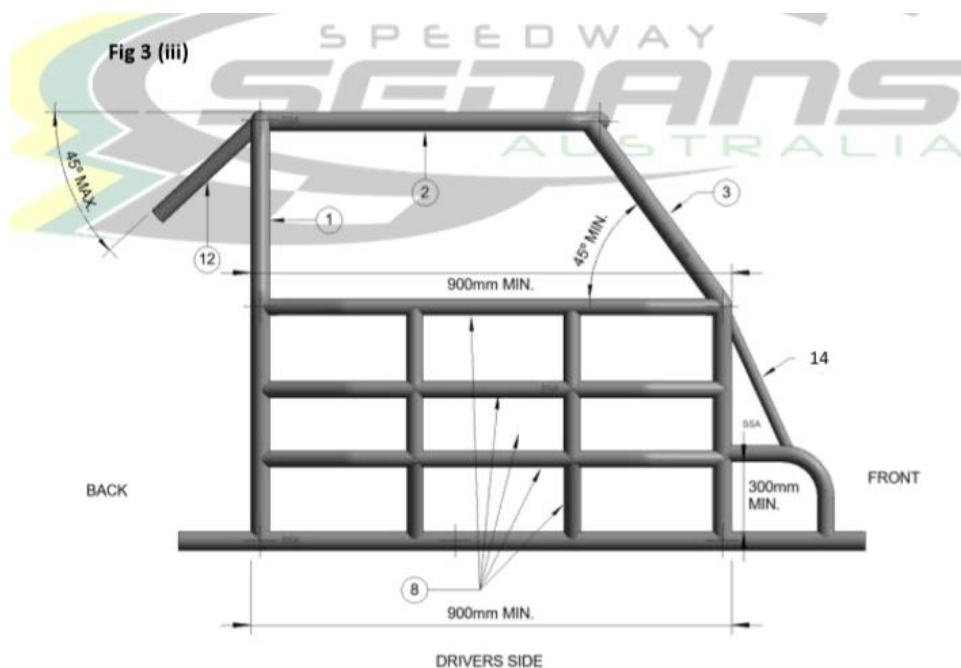
Bar #9 Passenger side will have a minimum of two one piece bars attached at the Front A pillar legs and the Main Hoop Bar. One of these must be horizontal at window sill height which will be at the same height as the top NASCAR bar on the driver's side. The second bar cannot be vertical.

10 Lower Windscreen Dash Bar:

Bar #10 A one piece straight bar mounted horizontally between the Front A pillar legs must be fitted within 50mm at top NASCAR bar height.

11 Centre Windscreen Bar:

Bar #11 A one piece straight bar is to be fitted at centreline of cage at 90° to and between roof hoop halo (bar #2) and the lower windscreen bar (bar #10).



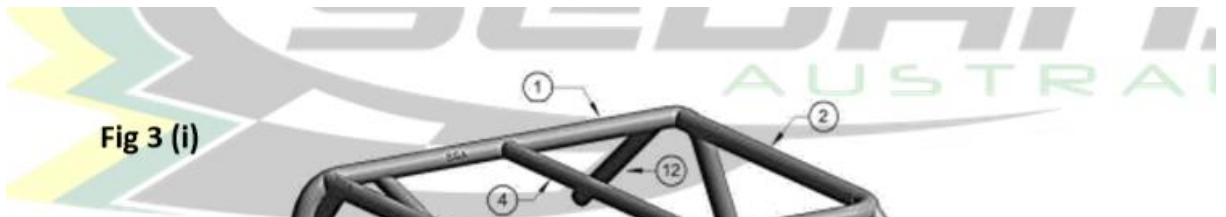


Fig 3 (i)

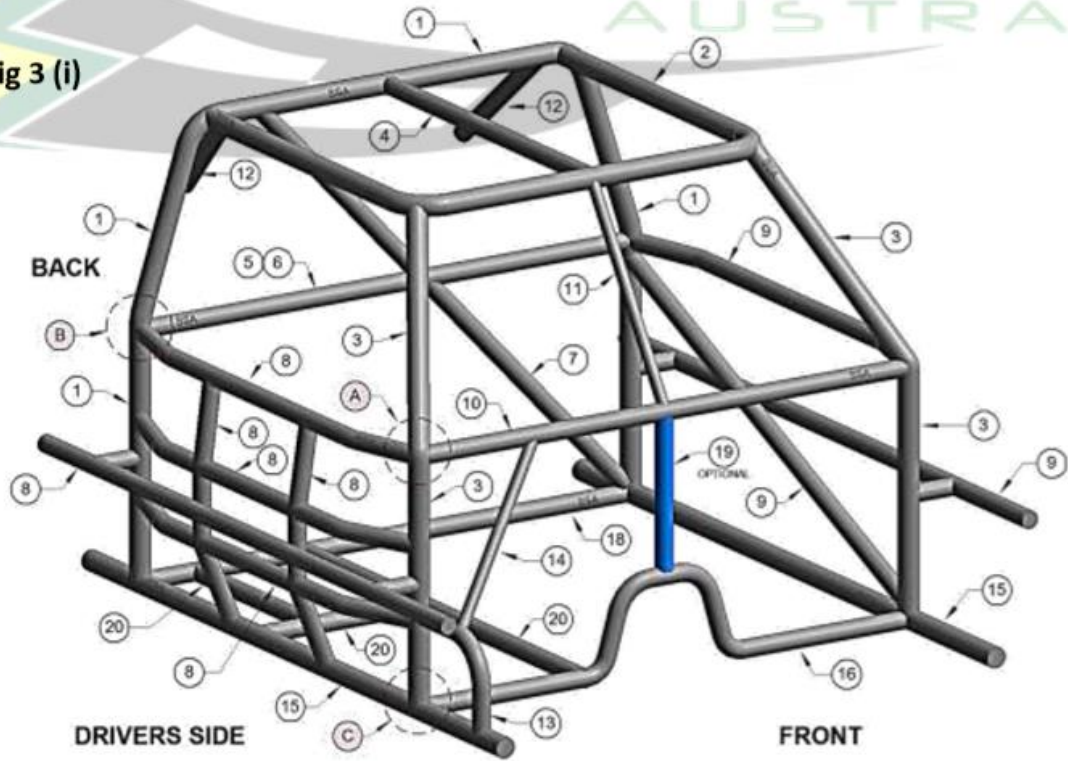
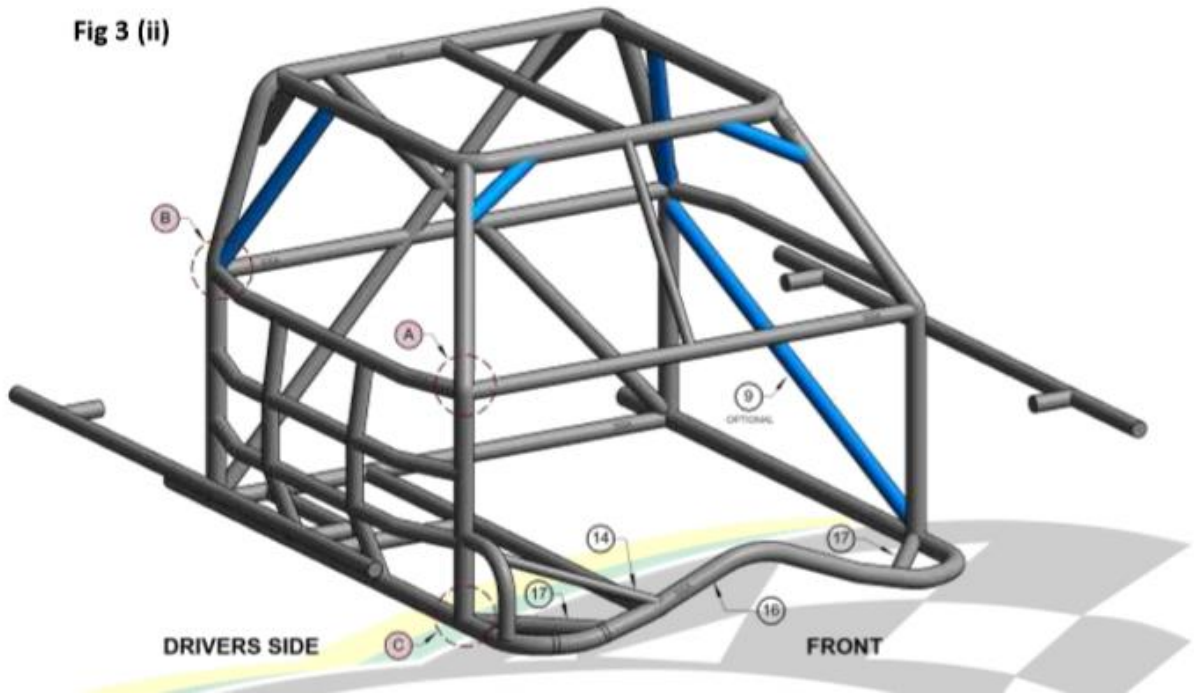


Fig 3 (ii)



Option B, Information & images: <http://speedwaysedans.com/273-modified-production-specification-book.asp>

4.2.1.13 – Bumper Bars

4.2.1.13.1 – OEM Bumpers

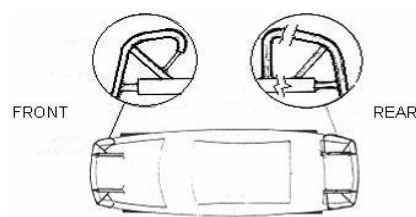
OEM type steel and plastic bumper bars if used must be fitted with original brackets in original position. No other bar work is to be used with OEM steel bumper bars. Bumper ends can be tagged to guards (front & back) with a plate maximum 100mm x 100mm x 1.6mm. Bumper can be replaced with 38mm CHS external bar work as per Fig.7.

4.2.1.13.2 – CHS Bumpers

Bumper can be replaced with 38mm CHS external bar work as per Fig.7.

- a) Bumpers to be securely mounted in original position using supports of a minimum of 100mm from rear of bumper tube.
- b) Maximum support size 42mm x 3.2mm CHS, 40mm x 40mm x 3.2 RHS, or 50mm x 25mm x 3.2 RHS only i.e. gussets are not to be used.
- c) Bumpers are not to be tied to under guard bar work.
- d) Front bumper, Maximum return 300mm, minimum 100mm by max 42 mm x 3mm CHS. Bumper may be covered with a plastic road car bumper front & rear.
- e) Rear only, returns of rear bumper may be extended as a skid rail against outside of body between bumper and wheel arch, and then extend inward to the “chassis rails/bar work. Max 42mm x 3mm CHS. Bumper may be covered by plastic road car bumper.
- f) Maximum of four (4) mounting points on each bumper bar.
- g) Bumpers are to remain hollow.
- h) Returns and bumpers to be flush fitting with the body within 25mm.
- i) Anti-hook-up bars from returns of front and rear bumpers to be extended onto the stay bars. I.e. maximum 4 cuts to remove front bumper and 6 cuts to remove rear bumper. See diagram7.
- j) Except for the bumper and bumper support bars, all bar work outside the sub-frame skirts forward of the firewall, i.e. Under front guards, shall be a maximum outside dimension of 25mm and a maximum wall thickness of 3.2mm. Max 3 braces per side, one may be a vertical upright attached to the bumper support. No other bar work to attach to bumper bars or supports.
- k) No tow bars or tow bars frames allowed.
- l) Rear override bar may be used. Constructed of CHS maximum 25mm OD x 3.2mm WT it shall be no wider than the boot panel and shall be mounted centrally on TOP of the bumper bar at no more than four (4) points, be vertical and be max 100mm high. Brace bars are NOT to be used.
- m) Front override bar may be used. Constructed of CHS maximum 25mm OD x 3.2mm WT maximum 600mm long, 150mm high and mounted centrally on TOP of bumper at three (3) points only i.e. may have a central support.

No other bar work to be outside cabin, boot, or engine bay, with the exception of skid rails or div2 rub rails.



4.2.2 – Fuel Tank Protection

REFER TO SECTION 4.14 FUEL TANK - FOR ADDITIONAL INFORMATION

All Cars must have either fuel protection bar work as in Option A – Fig.8 or Option B Fig.9.

- Option A is Unlimited Sedan style
- Option B is Standard Saloon style

4.2.2.1 – Fuel Protection Bar Work - Option A

- Tanks to be securely mounted in the boot area of the car, in a suitable metal cradle attached to the bar work, with a minimum clearance of 150mm forward of the lower rear end of the boot panel and 300 mm minimum from side of vehicle and isolated from driver by a metal firewall.
- Fuel tank is not to be directly mounted to floor.
- Tank to be protected by substantial bar work on all sides.
- Fuel tank protection: Bar must be constructed of minimum 38mm x 3mm CHS, or 40 x 40 3mm RHS and be 25mm clear all around tank and filter, projecting a line from the rear wheel centre to the bar. Bar is to prevent side entry to tank by nose of another vehicle.
- Top protection bar minimum 38mm CHS. Must be 25mm above top of tank & lower bar to be minimum 25mm lower than bottom of tank and to be fitted no less than 50mm from the tank. If the distance between the top and bottom bar is greater than 200mm, an equally spaced horizontal bar must be fitted. Minimum 38mm CHS. Protector bars to have support bars, forward at approx. 45 degrees with a minimum 25mm CHS for both sides of tank, top bar, bottom bar or both.

OPTION A.

FUEL TANK PROTECTION BARS FOR FUEL TANK THAT ARE ABOVE OR BELOW REAR BAR WORK.
(BELOW BAR WORK SHOWN).

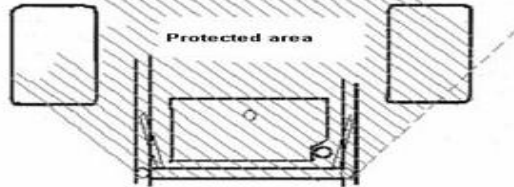
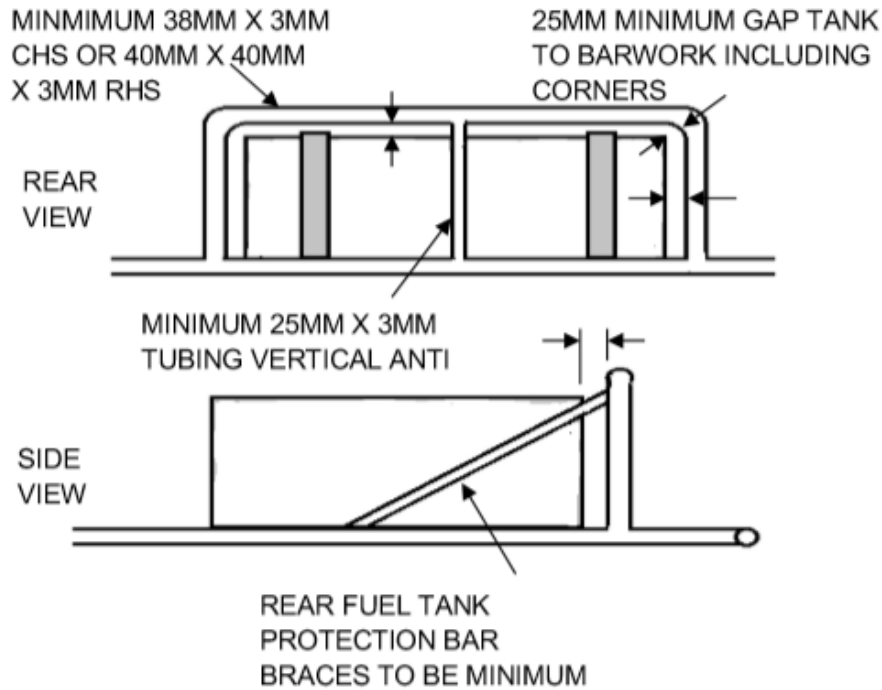


Fig.8

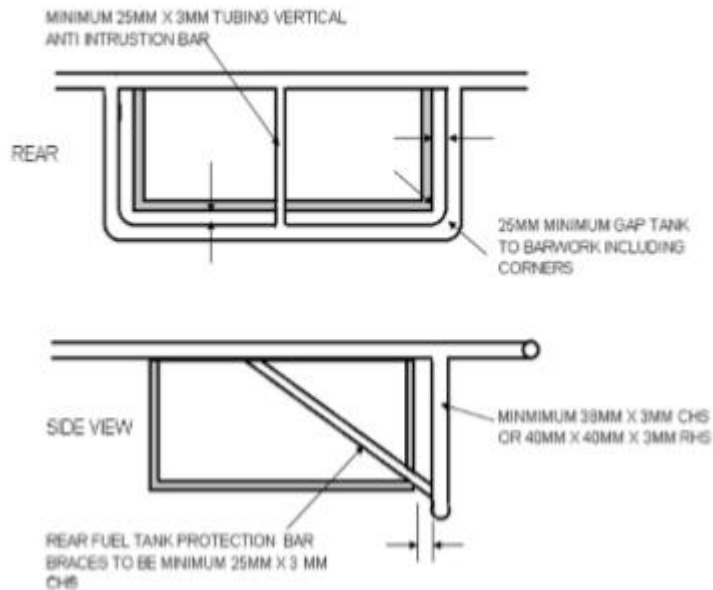
Rear fuel tank protection bar diagram 2

FUEL PROTECTION BARS FOR FUEL TANKS THAT ARE ABOVE REAR BARWORK



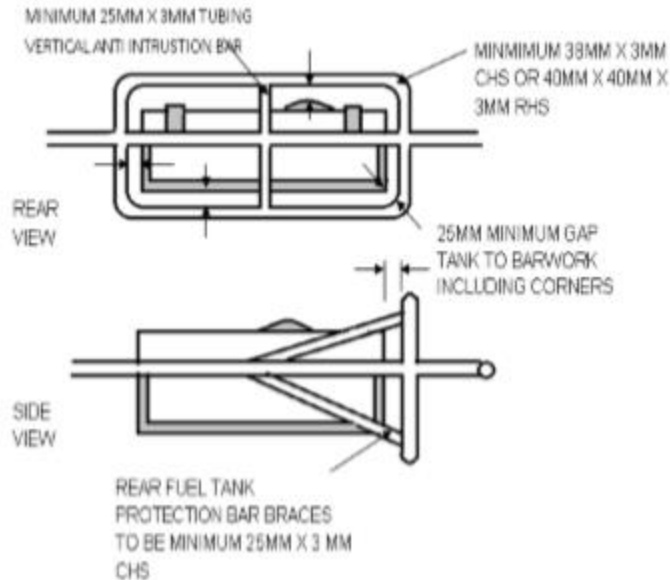
Rear fuel tank protection bar diagram 3

FUEL PROTECTION BARS FOR FUEL TANKS THAT ARE BELOW REAR BARWORK.



Rear fuel tank protection bar diagram 4

FUEL TANK PROTECTION BARS FOR FUEL TANK THAT ARE ABOVE AND BELOW REAR BAR WORK



4.2.2.2 – Fuel Protection Bar Work - Option B

- a} All fuel tank protection bar work to be a minimum 34mm OD x 3mm WT CHS, maximum 42mm OD x 3mm WT CHS.
- b} Welded to rear roll cage hoop.
- c} Bar work may follow contours of boot floor.
- d} May be attached by a minimum of four x 50mm fillet welds to floor or two 12mm steel bolts through the boot floor not chassis rail, using two 100mm x 100mm x 5mm steel plates or one 50mm x 50mm x 4mm steel angle (no wider than inside of rear wheel arches) above floor, and 100mm x 100mm x 3mm steel plates under the floor.
- e} Rear braces to be attached to top of roll cage rear hoop no more than 200mm from outside of roll cage leg.
- f} Lower bars to be no wider than inside rear wheel arches, minimum width 800mm.
- g} One (1) pair of rearward bars may be crossed.
- h} Bar may be joined by sandwich plates or sleeved joints to be minimum 500mm from rear of roll cage. Sandwich plate size maximum 150mm square, minimum thickness 5mm, using four (4) 10mm high tensile bolts per join.
- i} Alternatively, bars to be sleeved a minimum 150mm and welded.
- j} Fuel tank is not to be directly mounted to floor.
- k} Protector bar to be fitted to fuel bar work to protect fuel tank. Must be minimum 25mm higher than tank, minimum 38mm CHS to be braced forward, to bar work approx. 45 degrees, minimum 25mm CHS and to be fitted no less than 50mm from the tank.

OPTION B.

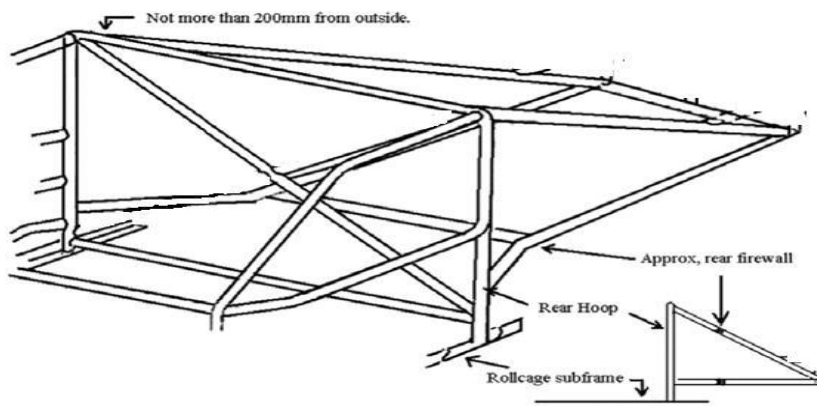


Fig.9

If Option B bar work is not used, rearward brace bars must be used from the top of the main hoop down onto the rear sub frame (approx. 45 deg) Must be centre of the top radius minimum 34x3mm CHS may have one spreader bar (view A)

4.2.3 – Optional Bar Work

4.2.3.1 – Rub Rails Optional

Mild steel rubbing strip between wheel arches to be 25 x 25 x3mm MS. To be securely mounted against body at a minimum of four) reasonable evenly spaced points.

Bolts must be minimum of 8 mm coach-head (cup head) bolts and be bolted horizontally to bar work. Bolts at each end must be no more than 50mm from the end of rub rail.

Inner mounting bar to be returned to chassis or roll cage at each end.

Rubbing rail ends to be closed and taper to 45 degrees as not to become a ‘spear’ See Fig.10

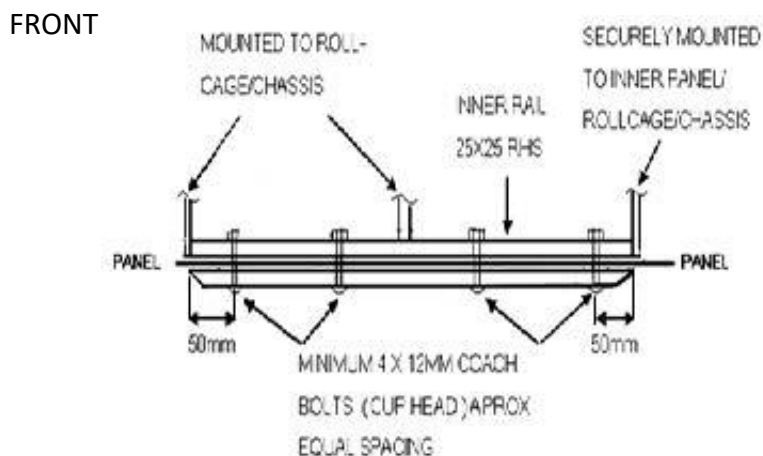


Fig.10

Rub strips not to be used on quarter panel behind rear wheel.

Or VSC standard saloon style rubbing strips between wheel arches permitted, to be 25mm x 25mm x 3.2 WT RHS, to be securely attached against outside of body by four (4) reasonably even spaced points, using 12mm cup head bolts (round dome head). Through onto bar work mounting points, ends of strips to be chamfered and filled in, mounting bracket to be no larger than 25mm x 25mm x 3.2 RHS where necessary (i.e. onto rear bar work) any holes in bar work must be sleeved and sleeves must be welded in place.

No other material may be placed inside rubbing strips, end mounts to be within 50mm of ends. See Fig.11

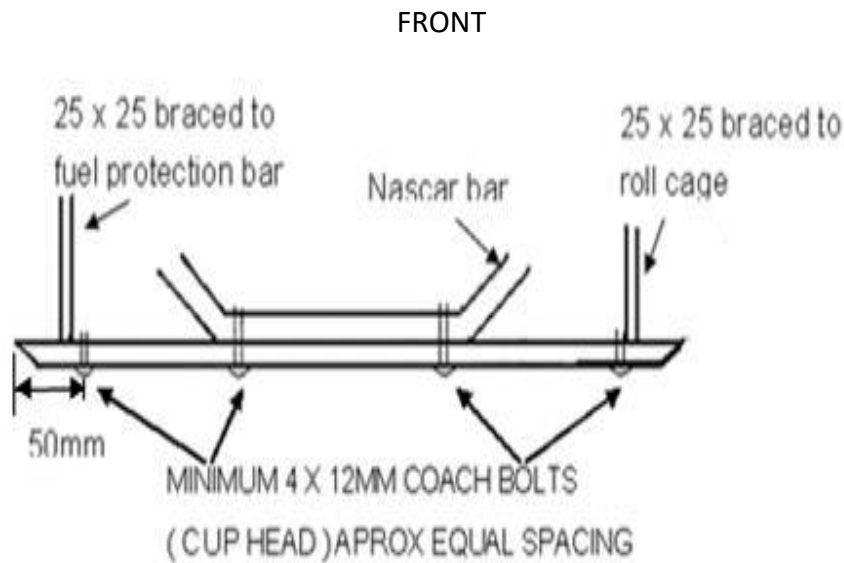


Fig.11

Div2, Super Sedan and AMCA can use their respective rub rails as per the appropriate spec book.

4.2.3.2 – Optional Engine Bay Bar Work

Shocker tower support bars to be mounted to roll cage/dash bar, bars may form a crucifix.

Bars may run from shocker tower to front chassis rail, lower bars to run along chassis rail top or bottom, inside or outside with only one bar to go across in front of radiator.

No bar work forward of radiator support panel.

All bar work to be maximum 42mm OD x 3.2mm CHS.

High bars are allowed where fitted.

4.3 – BODIES

All diecast, brittle plastic and chrome must be removed from the vehicle.

All holes in firewalls must be covered.

Steel doors must be securely bolted or welded shut, with no plates or other strengthening panels welded to the doors.

Steel bonnets and boots must have a min of 2 quick release pins at front and be secured at back.

Fiberglass front bonnet to have 5 quick release pins 3 front, 2 rear. Rear fiberglass boot to have 4 quick release pins 2 front, 2 rear.

Replacement panel's 1.6mm maximum can be steel, fiberglass or aluminium.

Pins to be minimum of 12mm. Heavy-duty large reinforcing washers (min 32mm OD) to be fitted to all fiberglass bonnet and boot pin holes or worn holes in steel bonnets and boots.

The only panels which may be removed: Radiator support panel, front guards and inner guard panels forward of front suspension mounts, roof inner panels ONLY at the points where interference with the roll cage occurs, dash panel, boot inner panels, boot floor and/or rear wheel arch sections rearward of the rear axle centre-line, rear quarter panels from rear window base line.

Rear body silhouettes to be retained.

No holes allowed in bonnets, scoops, or firewalls.

No Tek Screws outside of body.

Body flares- maximum 100mm wide x 1.6mm thick metal with maximum 10mm rod supports or plastic of equivalent strength.

Chassis cars may use super sedan type body

If firewall is modified it must be 3mm steel.

No engine air intakes or filters allowed in cabin.

No tow bars or tow bars frames allowed.

Roof and boot wings permitted. Must be securely mounted and not protrude past body line.

Mirrors NOT permitted.

All electrical wiring to be grommeted where it passes through metal or aluminium sheet.

No sharp edges allowed in cabin area.

4.4 – SUSPENSION

Any type of safe and adequate suspension permitted.

4.5 – STEERING

Any type of safe and adequate steering box or rack may be used.

Power steering permitted.

Steering shaft must be securely attached to the roll-cage (i.e. U bolt).

Left hand drive permitted, must be mirrored of right-hand drive.

Quick release steering wheel is mandatory.

Steering wheel must have soft pad mounted in centre of it.

4.6 – BRAKES

Minimum of 3 brakes operational.

Outside front wheel is the only brake that can be removed or disconnected.

4.7 – ENGINES

Can be any type at any stage of tune, forced induction permitted for 4- and 6-cylinder engines only.

Engines which are not solid mounted must be fitted with minimum 6mm high tensile restraint chains.

One (1) throttle return spring must be used on each throttle shaft, and one (1) return spring on throttle linkage

All coolers and water pumps must be isolated from driver and passenger by a metal firewall.

No cabin mounted transmission, power steering or oil coolers/radiators allowed with exception of engine radiators.

No cabin mounted fuel pumps.

If engine firewall is to be modified it must be done with a min of 3mm steel.

No air cleaners in cabin.

4.7.1 – Carburettors & Injection

All carburettors and fuel injection must have a return spring fitted to each butterfly shaft and one to pedal linkage.

Must have some form of air filter.

Fuel injection must be controlled by computer.

No air cleaners in cabin.

4.7.2 – Cooling System

Cooling system may be modified.

All radiator hoses to be of fabric reinforced material, plain rubber hoses not permitted.

Radiators may be mounted inside cabin provided that they are mounted as low as possible in the rear of the vehicle and suitably isolated from the driver. The upper half of the rear window opening **MUST NOT** be obscured by the rear radiator. Radiator ducting shroud, if used, maximum of 600mm forward of the radiator and must not be more than half the rear window height.

Cabin mounted radiators must have BOTH tanks & radiator cap fully covered to protect driver/passenger in event of a cap or tank blowing.

Pipes leading to the radiator to be steel, aluminium or copper. All internal coolant pipes and hoses to be ducted or lagged with suitable material.

Hoses to be as short as possible and fitted to radiator from rear side.

Exposed hoses or joints not permitted in cabin area.

Cabin mounted fans to have shroud or suitable guard.

Cabin mounted water pumps must be lagged or covered by suitable guard.

Pressure release lever vent cap or tap must be fitted.

Radiator must be fitted with overflow hose, must exit through floor if radiator is cabin mounted.

Any type of fan fitted with guard permitted.

4.8 – BATTERY

4.8.1 – Battery in Cabin Area

Must be securely mounted to the roll cage or bar work. **NOTE: NOT THE FLOOR**

If passenger seat fitted, battery must be **behind main HOOP BAR.**

Must have a single steel angle frame that covers four (4) sides of the battery top and bottom.

Angles to be a minimum 25mm x 3mm steel (refer to Fig 12)

Frames to be connected with a minimum 2 x 8mm rods/bolts, recommends 4.

Battery must be fitted with a non-conductive cover this is to protect driver from acid spill in event of rollover.

A blue triangle of 50mm x 50mm x 50mm to be placed on the outside of the car to show the position of the battery.

No hook bolts allowed.

No wing nuts allowed.

If battery in boot, **MUST BE IN THE MANDATORY BATTERY FRAME, AS ILLUSTRATED BELOW. FRAME MUST BE SECURELY MOUNTED** to the rear bar work or sub frame (**NOT THE BODY**) and must have a metal firewall between battery, fuel tank and driver.

Only one passenger vehicle size battery is to be used and battery MUST be within bar work.

NB: Where space is unavailable, additional bar work must be installed to encase the battery frame. Additional bar work must be roll cage material or equivalent with a minimum of 50mm clearance to battery. Additional bar work must be attached to original fuel protection bar work but **NOT attached to bumper bar work.** Refer Fig 13 below.

EXAMPLE OF MANDATORY BATTERY CLAMP/HOLD DOWN FRAME

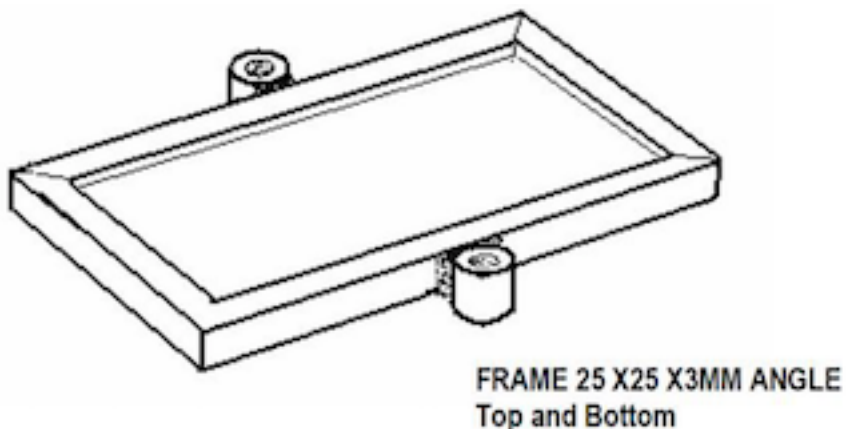


Fig.12

Example of additional battery bar work



Additional bracing

Fig.13

4.9 – KILL SWITCH

ALL electrics must be controlled via a Kill Switch.

An external Kill Switch must be fitted to the middle of the cowl panel and to be clearly marked 'ON – OFF', and must be of a contrasting colour.

Type of fuel being used to be marked at Kill Switch.

4.10 – TRANSMISSION

Any manual or automatic transmission can be used.

If automatic transmission used a working gearshift activated inhibitor switch must be fitted.

Floor shifts must have knob fitted and a correctly fitted rubber boot.

4.11 – TAILSHAFT

Each piece of tail shaft must be fitted with securely mounted 360-degree hoops at the front and rear.

Front hoop to be minimum 40mm x 5mm FMS or equivalent, be round, no larger than twice the diameter of the tail shaft and be securely mounted approximately 150mm from the universal joint, 6mm minimum chain securely mounted through the floor can form lower part of hoop.

Any wire or chain tailshaft loops must be fitted with a plate that is fitted between the loop on the top of tunnel min size 40mm wide 3mm thick floor to floor and must follow the contours of the tunnel. The loop must be secured to the plate and the plate to be secured to the tunnel. NO pop rivets or tek screws.

Rear hoop to be as above except that it may be elongated vertically to permit suspension movement.

Full chain hoops permitted.

Tail shaft and universal joints to be correctly phased and be suitable for the application.

A one-piece tail shaft may be used in place of a two-piece tail shaft.

Minimal modification permitted to fit the one-piece tail shaft in the tunnel.

4.12 – DIFFERENTIAL

Shrink rings to be welded in three (3) places or full floating axles permitted.

MUST be locked

4.13 – EXHAUST SYSTEM

Exhaust must finish behind rear roll cage hoop.

Extractors/Headers permitted.

Exhaust must be fitted with muffler and within noise level requirements or recommended 95dba.

All exhaust gases to be directed away from drivers/passengers, fuel tanks, tyres.

Internally ducted exhaust systems shall vent through the body, not higher than 100mm above door sill panel, using a slip joint as in diagram 8.

Driver and passenger to be suitably insulated from exhaust system. Insulation and firewall sheeting not to exceed 150mm above drive shaft tunnel.

Exhaust must not have more than two (2) outlet pipes and not protrude past the body line.

If exhaust system is under floor, safety chains will be fitted to front and rear of pipes and secured to floor pan or sub-frame.

Any car exhausting unburnt fumes while on the Dummy Grid or formed up on the track may be excluded to compete as this constitutes a health hazard.

INTERNAL EXHAUST, SIDE BODY VENT.

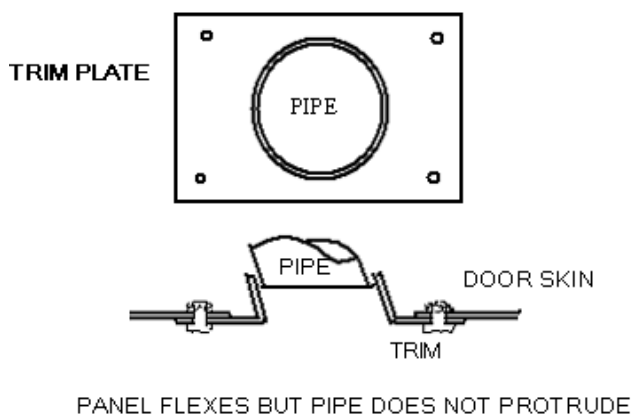


Fig.13

4.14 – FUEL TANK

Maximum fuel capacity 72 litres Unleaded or 120 litres Methanol.

No LPG or Avgas as per Government Regulations.

Fuel tank capacities are measured by the volume being .030 of a cubic meter maximum (eg. Rectangular tanks 4801mm (4.8) x 250mm (2.5) x 250mm (25) = 30 litres, cylindrical tank 611mm long x 250mm diameter =30 litres).

Volume must be no greater than 1% of the total capacity.

Metal fuel filler rings on plastic fuel cells must be fitted with earth strap to bar work or body.

Fuel tank area must be accessible for scrutineering (minimum access from top or rear is the size of the fuel tank).

Must be securely mounted in a suitable cradle attached to rear bar work or fuel protection bar work. Fuel tank must have fuel protection bar work as in either Option A Diagram 3. Or option B Diagram 4.

No aluminium straps or fittings permitted to secure tank.

Mounting brackets not to be welded to tank.

Fuel tank straps to be steel minimum 25mm x 3mm or 5mm steel chain for tank capacity of 32 litres or less, or minimum 32mm x 3mm for 33 litres to 60 litres

Filler cap to be a positive seal (not tapered thread).

Breather vent must have a one-way valve in working order, if boot floor fitted vent must exit through floor.

Fuel pick up fittings etc. to come from top or sides. Pick up from underneath of tank not allowed. Side fittings to be protected from intrusion.

Jerry Cans Not Allowed!

The Fuel line to the engine (excluding fuel injection) must be fitted with a quick action, non-leak fuel tap or valve. Must be in central cabin and within easy reach of driver and crash crew.

If a return fuel line is used a one-way valve must be fitted near tank.

Electric fuel pumps, fuel filters or regulators must be mounted within bar work and electric fuel pumps must be wired with an independent earth and **MUST** be controlled by the Kill Switch.

EFI Cars **must** use 'EFI High Pressure Fuel Line' including return line if fitted.

EFI fuel pump must be fitted with engine monitoring relay to stop fuel pump running when engine stops.

Fuel tanks to be constructed of minimum 1mm steel or 3mm alloy.

Competition plastic tanks allowed.

Original fuel tanks to be removed.

Screw type clamps to be used on all fittings.

There **must** be a comprehensive firewall between fuel tank, pumps, filters and regulators and driver.

All fuel lines to be isolated from electrical wiring.

Type of Fuel to be clearly marked at kill switch, boot, and fuel tap (cabin).

No fuel pumps, filters or regulators allowed in cabin area, maximum 2 fuel connections in cabin to tap only.

Commercial R6 bulkhead fittings allowed at firewalls.

Fuel tank is not to be directly mounted to floor.

4.15 – TYRES

Any size permitted. RADIALS & RACE RUBBER ALLOWED

4.16 – WHEELS

Any size rim permitted, all wheels must be professional quality steel or alloy.

Wheels may protrude maximum 60mm absolute from original body line. Any further the wheel is to be covered by optional flare, wheels not to protrude from under flare.

All wheel nuts to be open ended.

Wheel spacers or adapters allowed, correct fitting wheel, studs, nuts, and spacer may be used, or correct wheel adapter and studs may be used, not spacer and adapter together

Wheel studs not to protrude past line of rim.

All weights to be removed.

Competition type bead locks are the only form of mechanical tyre attachment permitted.

Wheels fitted with wheel cover must use correct wheel manufactures attachments only, covers maybe required to be removed for scrutineering purposes.

4.17 – BALLAST

Each piece of ballast must be painted white with registered car number painted in black.

If ballast is dislodged from race car during an event penalty may apply.

Maximum ballast size 610mm x 100mm x 50mm.

Ballast must be mounted to roll cage/bar work or chassis and mounted below top Nascar door bar height.

Mounting bolts to pass through ballast.

If attached to roll cage/bar work tubing correct mounting brackets to be used i.e.: AFCO.

If attached to chassis must be attached direct to chassis using half inch high tensile bolts and nyloc nuts. Bolts to go directly through chassis using proper engineering practice. (sleeves and washers)

Ballast up to 305 long minimum 1 bolt.

Ballast between 305mm and 610mm minimum 2 bolts.

Maximum 10kg per piece of ballast.

Maximum 40kg of bolt on ballast allowed.