

***"Duels in Dirt !"***

# ***Tableland Competition Car Club Inc.***

## **Regulations and Guidelines for Car Construction and Equipment**

To apply to "new-build" from -- 2009.  
To apply to all cars from August 2011.

## GENERAL

Specifications listed in this book are of a general nature only. If some detail is not in this document, ask for clarification or approval at pre-race scrutineering or at a club meeting.

## CONSTRUCTION – The car you will race must be safe for you and other competitors

Workmanship on race cars is to be of a professional standard. All materials used must be of good quality. Bolts are not used though structural tubing in roll cage cabin area unless a welding sleeve is provided. **No self tapping screws to be used in construction of cage.** All material sizes quoted are of minimum value unless a maximum is stated.

## GLOSSARY OF TERMS & CONDITIONS

Material

CHS -	Circular Hollow Section
RHS-	Rectangular Hollow Section
WT-	Wall Thickness
AS1163 GR300 -	Australian Standard 1163 for structural steel tubing Grade 300
FMS -	Flat Mild Steel
OD -	Outer Diameter
OEM -	Original Equipment Manufacture; used to indicate parts used or the complete vehicle as it left the production line from the original manufacturer.

## DRIVER SAFETY

All protective clothing and safety equipment must be used and/or worn in the approved and accepted manner whilst competing, testing, or practising.

All race wear/equipment can be inspected at each practise/race meeting and if found to be misused, neglected or damaged, it may be rejected and impounded by the scrutineer at any time, and if considered to be unsafe, gear may not be used again for any speedway event.

## PROTECTIVE CLOTHING

Race Wear: Driver and passenger to wear a minimum of one piece cotton overalls.

Sleeves must be down at all times when driving race car.

No flammable synthetic material to be worn against the skin.

Boots: Driver / passengers must wear covered secure footwear.

Helmet: Driver / passenger must wear an approved and correctly fitting helmet, which meets or exceeds AS1698-1988 or Snell Foundation which meets or exceeds SA85 standards.

Suggested helmet life is as per the manufacturer's guidelines, however, if a helmet is misused, neglected or damaged, it may be rejected and impounded by the scrutineer at any time. If considered to be unsafe, the helmet cannot be used again for any speedway event.

A chin cup on a helmet is not permitted.

Spectacles, visors or sunglasses, when worn, must have lenses of non-splinterable material.

Neck Brace: A correctly fitting Neck Brace must be used (matched to driver and helmet).

Neck brace is to be of high density foam covered with Nomex, wool or similar fire retardant material.

A nominal 15mm gap between helmet and collar must be evident to prevent leverage injuries. Neck brace to be worn as recommended by manufacturer.

### INSTALLATION OF DRIVER RESTRAINT SYSTEMS: Fig 3

In order for the driver restraint system to be fully effective, considerable thought must be given to the location of mounting points, and to proper installation.

With the seat, roll cage and belt anchors all part of the same structure, deformation of the remainder of the car does not put driver at serious risk.

The mounting points must 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.

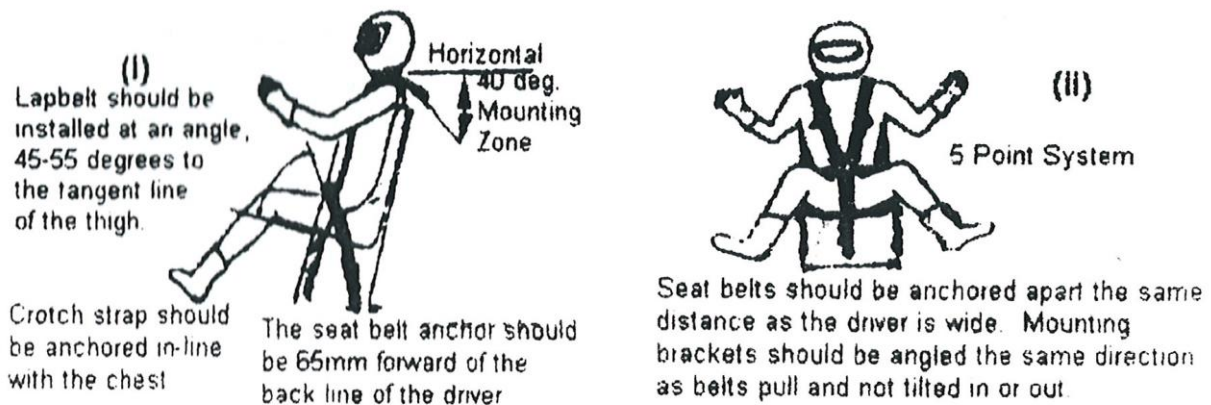
The lap belt should be positioned so it rides across the solid pelvic area and not the soft stomach area or down on the thighs. The shock absorbing ability of the pelvic area and its ability to protect internal organs make it the preferred location for the lap belt. See Fig 3 (i) & (iii).

The shoulder harness should be mounted to prevent driver's shoulders from moving forwards (upward if semi-reclining), out of the seat, in the event of a rollover.

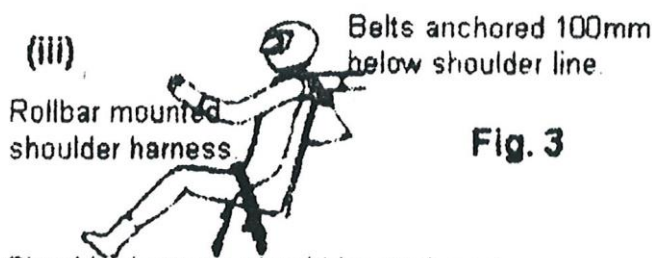
A minimum gap of 50mm from the top of the drivers helmet to the roll cage roof and head plate/hoop bar is required. Anti-submarine straps serve two purposes.

1. To secure the lap strap down across the driver's hips, so in the event of an accident, it is not pulled across the stomach by the shoulder straps.
2. To prevent the driver from sliding forward and out of the harness. When the driver is seated in an upright position, as in most sedans, a five point system (a single anti-submarine or crotch strap) is considered adequate (Fig 3 ii). For extra assurance a double anti-submarine belt can be used (Fig 3 iv).

**Fig 3**

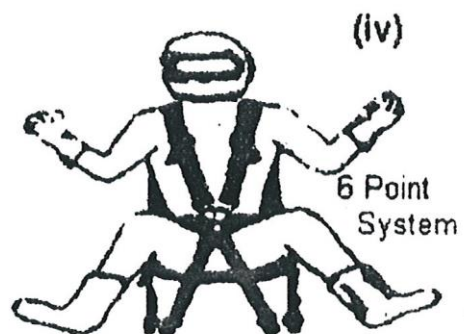


Seat belts should be anchored apart the same distance as the driver is wide. Mounting brackets should be angled the same direction as belts pull and not tilted in or out.



Shoulder harness should be anchored at a 45 degree angle from the seat. If mounted to a roll bar cross brace, located 100mm below the shoulder line

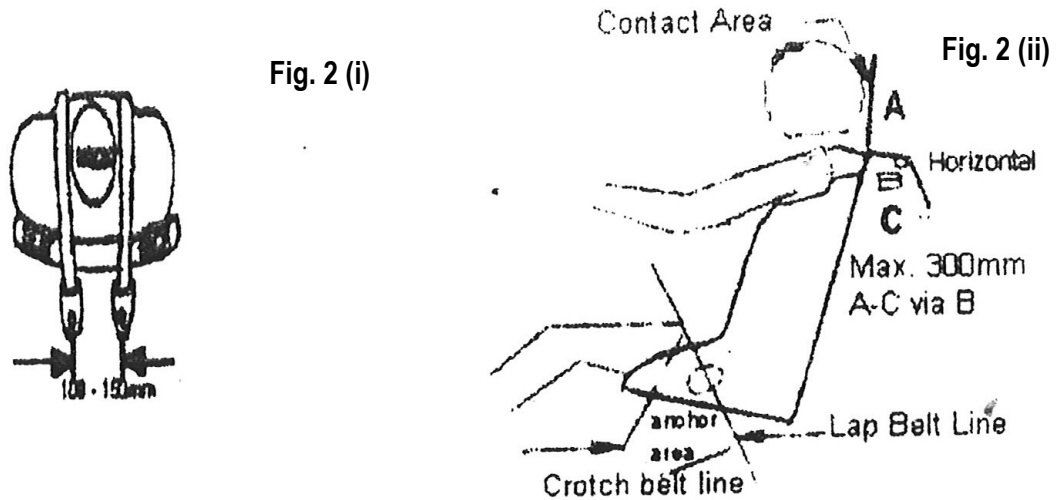
**Fig. 3**



Crotch strap mounts as far apart as comfortable

Lower seat belt mounting brackets (anchor points) must be on a roll cage and chassis or substantial bar work using a minimum construction of 25x25x3mm RHS or 25mm ODCHS  
 Seat belt attachment tag to be 3mm minimum mild steel.

**Fig 2**

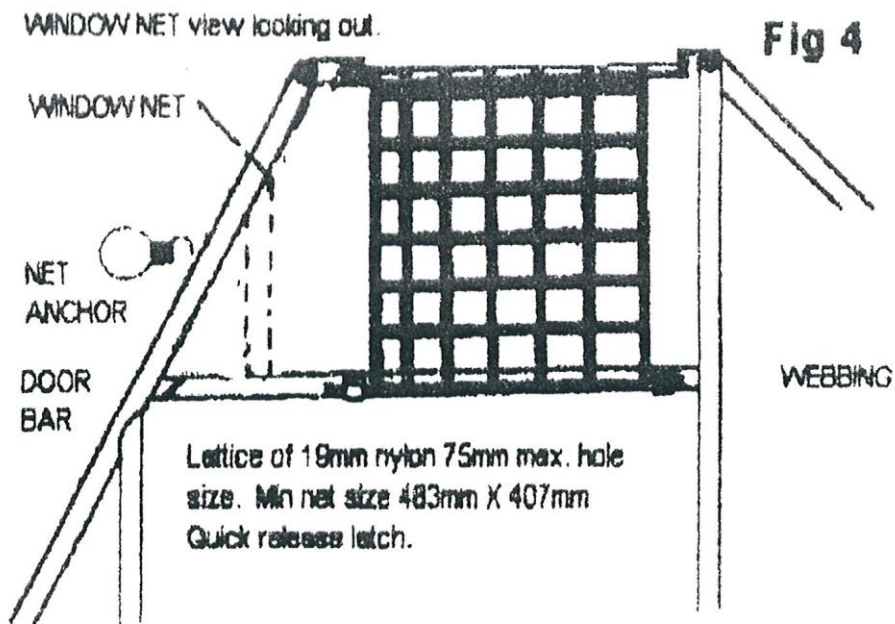


The bar providing the anchor points for the belts is to be positioned so that the belts are anchored a maximum of 300mm from the point at which the belts pass through the back of the seat.

**WINDOW NET**

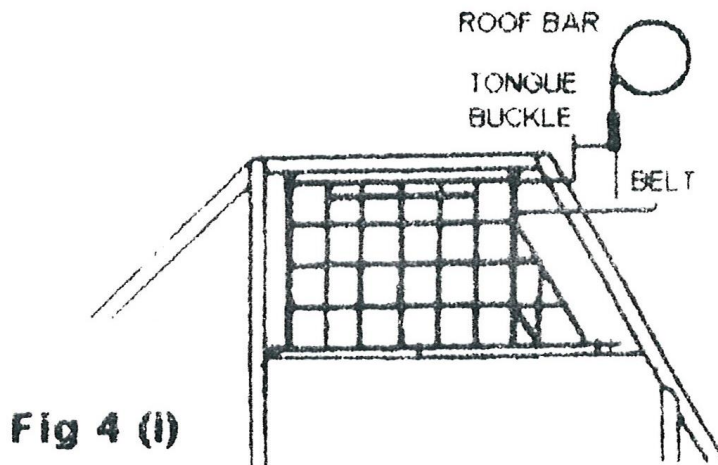
**Window net is mandatory for driver and passenger**

Net to be a minimum 19mm woven webbing with 75mm max hole size.



It is recommended that the window net be hinged from the bottom.  
 Window net must be mounted directly to be roll cage bar (top) and NASCAR bar (bottom) from the quarter window bar (if fitted) back

When installed net must be firm not floppy loose.



This design uses two push button seat belt buckles and belts. Tongues are welded to the side of roof bar. 25x3mm FMS welded to rear of buckles. Tubing at base of net fixed with bonnet lock pins.

#### **PADDING**

The driver must be protected, in the race car, from all sharp edges and projections or bar work, which could cause injury in an accident.

#### **FIRE EXTINGUISHER (Compulsory in Herberton)**

On board fire extinguishers permitted. It must be securely mounted and be of the correct type for the fuel being used.

#### **SEAT**

A "Purpose Built" one piece, 1.6 mm steel or 3 mm aluminium bucket type seat incorporating a substantial head rest must be used. Minimum thickness of aluminium and steel seats is 3mm. Approved proprietary line competition seats and mounts permitted e.g. Kirkey/Butler/Genesis.

Magnesium alloy seats are not permitted.

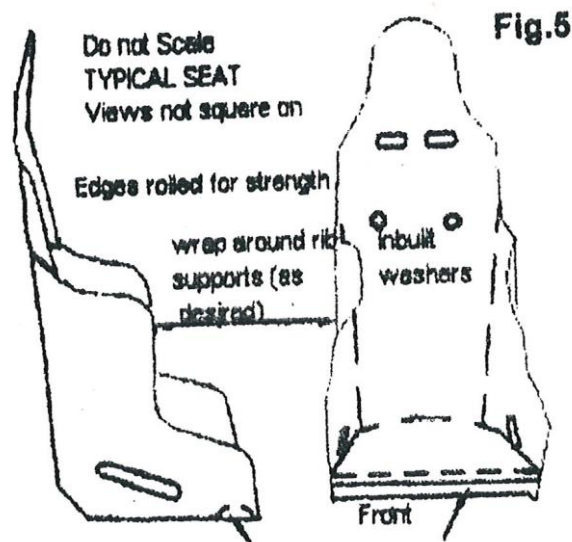
Lateral (sideways) support must be given to hips and above waist.

Concave seat to support back to minimum of TOP of shoulder height and width.

The seat is to be mounted completely on the right hand side of the vehicle centreline.

The seat base is to be mounted to roll cage chassis at a minimum of two points using 8mm bolts and minimum of 40mm diameter body washers. (Four points are recommended).

Seat back is to be braced and attached to the roll cage approx 75mm below shoulder height using a minimum of two 8mm bolts and 40mm body washers. There is to be a minimum of 50mm clearance between the helmet and the head plate/hoop bar.



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

### Car Construction / Modification – Body, Chassis, Roll Cage, Bar Work

1. Race car is to use an original, **complete**, metal body production type sedan. Four-wheel drive, all-wheel-drive, four-wheel-steer systems are not permitted. Chassis cars not permitted ("Grandfather" clause applies).
2. All fittings must be removed (door handles, visors, ornamental mouldings, body trim strips, wheel trims etc.)
3. All unnecessary flammable material must be removed, e.g. door trims, floor coverings: attached sound deadening material.
4. All window glass and lights must be removed - Instrument glass is permitted.
5. Replacement panels must be securely fastened; self drilling (TEK) screws are secure.
6. Rear spoiler permitted on rear. Spoiler not permitted to be above half rear window height, not wider than waistline of the car at that point nor further to the rear than the back of the original rear bumper.
7. Other aerodynamic systems not permitted (No Wings).
8. All vehicles must carry the identification number, as issued by their club. This number must be displayed on both sides of a vertical roof plate (300 x 300mm min.) angled at approx. 45 degrees (front left to rear right) across the roof. The number may also be displayed on each side of the car. A club prefix (H) may be required if you plan to race at other venues. Number and background to use contrasting colours.
9. Fuel tap lever or switch to be marked, indicating FUEL and the positions ON / OFF
10. Removable bonnet and boot lid to be securely fastened using four mounting points using pins and large washers. Hinged bonnet and boot lid permitted, using minimum of two pins. Skeletonising not permitted on hinged panels within 50mm of hinges. The hinged panel to be welded to the bonnet or boot skin.
11. Fuel tank area must be accessible for scrutineering. No floor under tank.

\* If any car requires repair, such repairs must comply with construction rules.

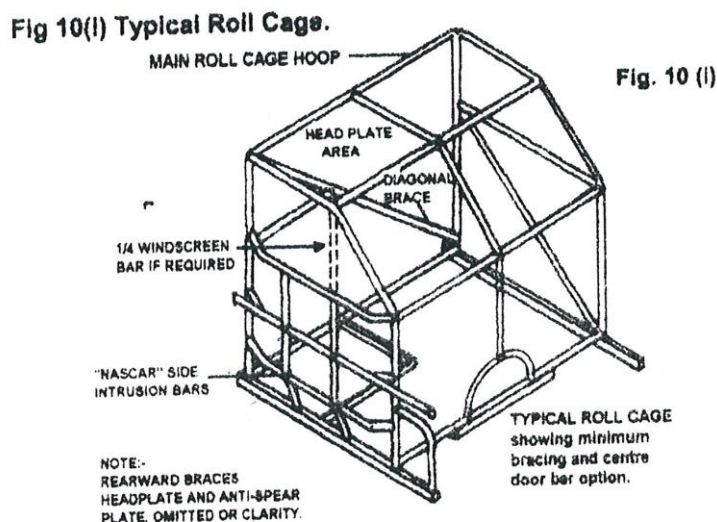
### NON ORIGINAL BODY FIREWALL

Driver must be protected and isolated from mechanical, fuel, and electrical components including battery. Marine type plastic or similar box accepted for battery while exhaust components must have metal firewalls.



## ROLL CAGE

- a) The roll cage is to prevent the collapse of cabin area under impact. Roll cage, to enclose driver, to be 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 driver's seat forward to the windscreen area and incorporate protection for the driver's feet.
- b) All roll bar material must be of good quality mild steel - AS 1163. MINIMUM 38mm OD x 3.0mm WT  
Aluminium based materials are not permitted.  
All bends to be made using a pipe bender or weldable bends with the correct size former.  
Galvanised tubing or welding over threaded tubing is not permitted in any structural bar work.  
Water pipe fittings or malleable fittings are not permitted.  
Roll cages must be metal welded.
- 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. See Fig. 10 (i)
- d) Bars are to be inside body, as close as practical to body panels.



Angle of roll cage "A" pillar bar to be of not less than 45 degrees down from roof bar. See Fig. 10 (i) and (ii). If "A" pillar bar does not follow "A" pillar line and is 45 degrees, additional sub-frame cross brace from front of foot protection to left hand side may be required. Roll cage legs shall be welded to the top of a sub-frame of tubular or angle section running fore and aft.

Sub-frame to be securely welded or bolted to the floor pan/sills using at least four 12mm steel bolts through the sub-frame and using 100mm x 100mm plates under the floor pan.

### **Sub Frame Material Sizes**

- A. Tubular mm. 38mm x 3.0mm w.t. CHS or 50mm x 50mm x 3mm w.t. RHS
- B. Angle minimum 50mm x 50mm x 5mm

A one piece diagonal brace, mm. 38mm O.D. x 3.0mm w.t CHS will be fitted in the main roll cage hoop behind driver's head, (within 250mm of the bend), top right to bottom left, See Fig. 10 (iii). A second brace may be fitted in cruciform. The diagonal brace, top right to bottom left, must be one piece.

**ADDITIONAL MINIMUM BARWORK: 38mm OD x 3.0mm wt CHS**

Top windscreen bar. Lower windscreen/dash bar.

Seat back support/shoulder belt mounting bar.

On driver's (right) side: three horizontal side bars, curved out to the door skin, are to be placed between front and rear cage legs, evenly spaced between window sill and cage sub-frame.

Door pillar to be notched or removed, 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. See Fig.10 (i)

Passenger's (left) side: Three bars between front and rear roll cage legs. One must be horizontal at window still height.

Minimum of two sub-frame cross braces at roll cage legs, either 38mm OD x 3.0mm wt CHS or 35mm x 35mm x 3mm wt RHS. Centre roof bar 32mm O.D. x 3.0mm wt CHS.

A quarter window bar, if required because of excessive rake or a long roll cage, be fitted to both sides and installed from the top NASCAR bar to top half of pillar bar using minimum 25x 3mm CHS (38mm x 3mm CHS recommended).

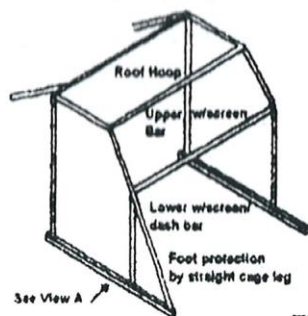
Alternately, a 38 x 3mm OD bar may be fitted from top of "A" pillar bar to top of NASCAR bar at 45 degrees of the top bar on both sides.

Centre windscreen bar, 25mm OD x 3.0mm wt CHS.

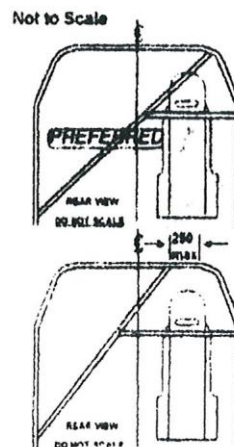
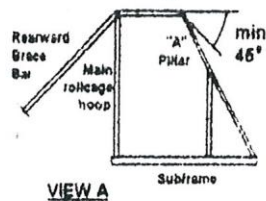
Rearward brace bars from the top rear of main hoop down onto rear sub-frame (approximately 45 degrees). May be crucifix.

Must be attached to the rearward side of the hoop within 100mm of the centre of the top radius.

**Fig 10 (ii) – (iv) Cage Details**



**Fig. 10 (ii)**



**Fig. 10 (iii)**



### **Anti-Spear Plate**

An anti-spear plate, 3mm steel or 5 mm alloy (NOT to be lightened by drilling) to be fitted to outside of "NASCAR" side intrusion bars, between roll cage legs, from floor-line to window sill bar (driver's and passenger's side).

### **Head Plate**

To simplify the removal of an injured driver or passenger it is highly recommended that a removable full size head plate be used.

Head plate to be of 5mm ALUMINIUM ALLOY 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 MS tag acceptable. Plate to be mounted, from above, with 10 x 8mm dia. high tensile bolts, 3 each side, 2 front and 2 rear. Heads of bolts to be downwards, i.e. no projections. ALTERNATIVELY.

A head plate minimum 3mm steel must extend from rear roll bar to top windscreen bar and from driver's side outer roof bar to centre roof bar. This plate must be securely welded to these bars with intermittent welding procedure.

Helmet clearance between roll cage roof/hoop bars for existing vehicles, may raise head plate as per drawing below, to obtain 50mm clearance. A minimum of 50mm clearance is required between the helmet and any part of the rollcage and headplate when driver is seated.

### **WINDSCREEN MESH**

Mesh screen to cover entire area from "A" pillar to centre bar and from dash to roof bar. Also on passenger side if carrying passenger. Minimum effective mesh size 50mm x 50mm. Mesh gauge 3mm. Windscreen mesh to be welded, or clamped with metal clamps to the roll cage "A" pillar and centre windscreen bar. Minimum of four clamps. Mono cars may be welded to body.

### **BUMPER BARS & OPTIONAL EXTERNAL BARWORK**

OEM type steel bumper bars are **NOT** permitted but may be replaced with maximum 42mm OD x 3.2 CHS.

Bumpers are to remain hollow.

Corners and ends of front and rear bumpers to be radius formed, 100mm minimum.

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." Corner plates on top edges of either bumper not permitted.

### **RUB STRIP MOUNTING**

Mild steel rubbing strip between wheel arches to be up to 50x25x3mm MS RHS. Be securely mounted against body at a minimum of four points.

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

Running rail ends to be closed and taper to 45 degrees as not to become a "spear".

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

### **REAR OVERRIDE BAR**

An override bar may be used. Constructed of maximum 25mm OD x 3.2mm WT, be VERTICAL and be maximum 100mm high. Brace bars are not to be used. Rear override bar may go around corners of car and protect side panels behind rear wheel arch. Maximum of six uprights.

## **FRONT OVERRIDE BAR**

An override bar may be used. Constructed of CHS maximum 25mm OD x 3.2mm WT150mm high and mounted centrally on top of bumper. Front override bar may go around covers of car. Maximum of six uprights allowed.

## **ENGINE**

- a) No performance additives to be used to increase engine power.
- b) Only ULP, PULP and AVGAS permitted. The use of exotic fuels (eg Methanol) not permitted.
- c) If resilient engine mountings are used, a wire cable or chain restraint must be fitted.
- d) Solid engine mounts are permitted.
- e) Return spring must be fitted to each carburettor butterfly shaft (in-built springs accepted) and one spring to accelerator pedal linkage.
- f) Protective wire gauze or air cleaner to be fitted over air intake to prevent entry of foreign objects to throttle body and also to act as a flame trap.

## **BATTERY AND ELECTRICAL SYSTEMS**

- a) Battery to be securely mounted in box or metal frame secured to roll cage or bar work.
- b) Suitable grommets must be fitted where battery cable passes through metal firewalls
- c) At the commencement of a meeting, a car must be capable of starting with a starter motor.
- d) Switches: Ignition switch and electric fuel pump switch, if fitted, must be grouped together and clearly marked.
- e) An engine "kill" switch, suitably marked with contrasting colour must be fitted in a centre of "cowl panel"
- f) Electrical switches NOT to be mounted through floor.

## **EXHAUST SYSTEM**

- a) All exhaust gases are to be directed away from driver, fuel tank and tyres.
- b) Driver to be suitably insulated from exhaust systems.
- c) Exhaust system to not protrude beyond body line.

## **COOLING SYSTEMS**

- a) Cooling systems may be modified.
- b) Use approved radiator hoses.
- c) 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.
- d) Cabin mounted radiators must have BOTH tanks covered to protect driver in the event of a cap, hose or tank blowing.
- e) Pipes leading to the radiator to be of steel, aluminium or copper tube. All internal pipes to be ducted or lagged with suitable material.
- f) Hoses to be as short as possible and fitted to radiator from rear side.
- g) Exposed hoses or joints not permitted in cabin area.
- h) Cabin mounted fans to have shroud or suitable guard.

## TRANSMISSION

- a) Electronic Traction Control systems are not permitted.
- b) All cars must have a Scattershield fitted. To be minimum 3mm x 150mm wide and must cover the upper 180 degrees of bell housing and be securely attached to the bell housing or fire wall in engine bay, or front fire cabin area, to protect the drivers feet and legs from clutch operation.
- c) Cars fitted with automatic transmission and a torque converter must fit a Scattershield.
- d) Tail shaft may be of one piece or two piece types.  
Tail shaft/s must be fitted with 360 degrees hoops at front and rear. Tail shaft loop – Steel strap minimum 40mm x 5mm or 6mm wire rope to be SECURELY fitted around the front and rear of the tail shaft within 150mm of universal joints to prevent the tail shaft and or shafts from dropping in the event of breakage.
- e) All drive line components must be derived from mass produced passenger cars. No quick change differentials. No racing gearboxes. E.g Bert Box.

## REAR AXLE BEARING RETAINING RINGS

- a) If using assembly not fitted with floating axles, a new retaining ring must be fitted at replacement of bearing or axle. Ring must be an interference fit with axle, when in place the retaining ring is to be tack welded using MIG or small diameter low hydrogen rod or low amperage.  
**\* Failure To Observe This Procedure Could Lead To Injury or Death If An Axle Is Dislodged – Consequences would apply to persons responsible.**
- b) Wheel studs: Grade 8, 12mm minimum on all vehicles or manufacture size.

## SUSPENSION

Modifications are permitted.

## WHEELS AND TYRES

- a) Wheels must be in good conditions and free from cracks
- b) Dual studs pattern drilling is NOT permitted.
- c) Wire wheels and/or dual wheels not permitted.
- d) "Mag" wheels: Correct matching nuts and washers must be used.
- e) New passenger car tyres and retreads permitted.
- f) When purchasing tyres, price is to be kept to a minimum. TCCC may specify what brand/make of tyre is to be purchased – Check before buying if unsure.
- g) Tyre re-grooving permitted.

**\* The following restrictions will apply from the start of 2017 Season :-**

- h) Highway rated tyres only. Maximum tyre width is 235mm.
- i) Maximum roll out of 2160mm or 85" when fitted on rim and inflated to race pressure.
- j) Bead lockers are permitted in a class, if all the participants in that class are using them.
- k) No race rubber permitted. Diamond backs, race tyres, mud and snow tyres, rally tyres and off road tyres are Not Permitted.

**\* For the safety of yourself and other drivers, it is highly recommended that tubes be used in tyres to avoid rapid deflation due to a tyre being rolled off the rim.**

## BRAKES

- a) All 4 wheels must lock when brakes applied at scrutineering.
- b) Foot operated hydraulic brakes to be fitted and be effective a race speeds.
- c) Brakes to be fitted to a minimum of three (3) wheels. \* All four (4) required at Herberton for long circuit.

## FUEL TANK AND FUEL SYSTEMS

- a) Original fuel tank must be removed and replaced by a tank of up to 40 litres. Area beneath tank to be cut out, giving adequate ventilation and ensuring that spillage cannot remain in vehicle.
- b) Filler cap to be a positive seal, behind a firewall and inside body. Leavers on cam locked caps to be clipped. All joints to be welded to a professional standard. Fuel tanks to be constructed of minimum 1.0mm steel or 3.0mm aluminium alloy. Competition type "plastic" tank permitted.
- c) All fuel lines to be securely fixed in position. Barbed fitting of the correct size must be used in conjunction with screw type clamps when connecting flexible fuel line. Neoprene, reinforced plastic or "Black Fuel Line" may be used. OEM type Bundy Steel tubing may be used though the car or under the car. Flexible fuel lines can pass through the cabin area. High pressure lines are to use high pressure hose and fittings. The fuel line to the engine must be fitted with a quick action NON – LEAK fuel tap or valve in working order.
- d) Fuel lines **MUST BE ISOLATED** from electrical wiring.
- e) The use of an approved type fuel cell and receptacle is recommended.
- f) Fuel tank to be securely mounted in the boot area of the car, in a suitable metal cradle attached to the bar work.
- g) Tank vents to be fitted with an anti-spill device.

This document has been collated by Tableland Competition Car Club Inc. as a set of minimum requirements and guidelines, to help set up a car to compete in our racing events. If there is any aspect of these guidelines that you don't understand, contact the club (T.C.C.C.) for clarification.