



QLSRA Rule Book

# Regulations Governing Engine and Chassis Specifications

Effective from: 28 July 2018

## DISCLAIMER

These rules are designed to provide for the orderly conduct of speedway race car meetings and events, (including time trials and practice events) and to establish minimum acceptable standards for such meetings and events.

No expressed or implied warranty of safety shall result from any publication, enforcement or compliance with these rules, nor any variation or deviation of these rules nor any supplementary regulations approved and such enforcement and/or compliance is in no way a guarantee against injury or death to any participant be they a Driver, pit crew member, official, spectator or any person whatsoever.

Neither QLSRA nor any of the affiliated bodies, clubs or promoters, nor any official acting in any capacity whatsoever, or any other participant, shall be liable to any prosecution or action for anything done pursuant to these rules, nor liable for any death, injury, loss or damage arising by any alleged failure to implement these rules at a race meeting.

It is the responsibility of each participating Driver and official to have a copy of, and be familiar with, all relevant rules and regulations and by participating in a Speedway Australia sanctioned race meeting. Each participant is deemed to understand and has agreed to comply with and be bound by these rules to the exclusion of all others except where supplementary regulations for a specific event may take precedent.

All members are to comply with the current Speedway Australia Racing Rules & Regulations:

- Australian Speedway Racing Rules
- Drug & Alcohol Policy
- Drug Alcohol Testing Procedure
- Social Media Policy

## DUTY OF CARE STATEMENT

**This duty of care statement is to be read out by the Chief Steward to the Competitors at every drivers meeting before the start of any race meeting with no exceptions**

It is my duty to advise you of the following:

- That motor racing can be dangerous; your equipment could be damaged or destroyed; and you may suffer serious personal injury or worse.
- If there is any aspect of this race meeting that causes you concern for your personal safety or for that of any member of your crew, whether that concern be with the track, the venue or the manner in which the meeting is being conducted it is your obligation to bring those concerns to the attention of the Clerk of Course or Chief Steward.
- If after doing this those concerns are not addressed to your satisfaction, you are advised to withdraw from this race meeting.
- Does everyone understand his or her obligations and rights in this regard?
- It is also my duty to advise you that at any time during this racing meeting random drug and or alcohol testing may take place.
- If you have any doubts to your ability to pass such a test with a negative or zero reading you should withdraw from this race meeting IMMEDIATELY.
- Does anyone have any questions?

## **Contents:**

- 1.0 General rules - All vehicles must comply
- 2.0 Specification A – Litre Sprint
- 3.0 Specification B – Lightning Sprint (Bike Engines)
- 4.0 Appendix 1 – Production Engine Trial
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**Note:** General rules are to be used in conjunction with the one specification A or B . A vehicle must comply with one specific specification type only in its entirety. A competitor **cannot** use a combination of specifications to gain a performance advantage. The QLSRA machinery examiners reserve the right to make a decision based on the interpretation of the rules at their discretion.

QLSRA may impose a parity measure, alter or add to these rules at anytime using the decision making processes within the constitution.

The following page provides a list of any known clarifications or addendums requiring resolution.

## CURRENT ADDENDUMS & CLARIFICATIONS:

Rule ..... First Raised .....

**Nature:** Addition / Deletion / Removal of rule - "specify and quote wording"

**Purpose:**

**Observations resulting:**

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**Purpose:**

**Observations resulting:**

## **1.0 General Specifications (all vehicles must comply)**

### **1.1 Engine:**

- 1.1.1 All cars must be front engines.
- 1.1.2 No supercharging or turbo charging or forced induction of any type is to be used.
- 1.1.3 Engines to be used are engines that are mass-produced ADR or Import for road-registered use only – Mazda, Fiat, Honda, Mitsubishi, Suzuki, Kawasaki, Yamaha, VW, Hyundai, Toyota, Holden, Nissan (Datsun), Ford, Audi. These are current engines being used. Any additional engine specifications, other than those listed above, are to be submitted to the QLSRA Committee for approval.
- 1.1.4 No two stroke engines to be allowed.
- 1.1.5 Minimum / maximum number/configuration of cylinders: 4 cylinders inline.
- 1.1.6 Engine must be contained  $\frac{3}{4}$  inside the chassis.
- 1.1.7 All engines must be sealed and measured by a method determined by the head machine examiner and association committee. Engines sealed must be signed off by the authorised technical officer (or representative). All engines that are not sealed and signed off will be subject to a mandatory inspection for measuring at any time, or if a podium position is gained in a title or major blue ribbon event. If an engine is found to be outside specification and/or owner/driver refuses inspection they will be subjected to enforcement under Speedway Australia Rules and Regulations.
- 1.1.8 Computer of electronic management systems that are controlled externally or by remote control (separate from or not controlled by the driver whilst in the car), whilst racing are **TOTALLY BANNED**. ECU controlled traction devices are **TOTALLY BANNED**

### **1.2 Drive/ Transmission:**

- 1.2.1 All rotating parts within the cockpit must be protected by a suitable guard. Its minimum specifications being 1.6mm for steel and 3.0mm (3/32") for aluminium.
- 1.2.2 Transmission from the engine to the rear wheels must pass through a de-clutching device such as a dog box, gearbox or mechanically operated clutch. This device must have an easily accessible means of disengaging the drive.
- 1.2.3 Drive shall be on the rear wheels only. Chain drive or differential drive may be used but compliance with Specification A or B and must be checked for variances set by engine combination.

### **1.3 Battery:**

- 1.3.1 Battery must not be mounted in the tail  
All Liquid Filled Batteries to be covered by a protective covering to prevent spillage, however must be vented to prevent an explosion.
- 1.3.2 All cars must have a suitable device to prevent the battery from being dislodged in the event of a car rolling over.

#### **1.4 Ignition Switch:**

- 1.4.1 All cars must be fitted with a suitable on/off type ignition switch which must be mounted on the dash panel and marked clearly with the ON – OFF positions.
- 1.4.2 A kill switch is optional.

#### **1.5 Throttle Return Springs:**

- 1.5.1 All cars must be fitted with two (2) throttle return springs mounted directly to the throttle linkages so as to return the throttles to the closed position.
- 1.5.2 If the car is fitted with rod type linkages a hoop on the throttle pedal is required so the driver can return the throttle manually.

#### **1.6 Radiator and Hoses:**

- 1.6.1 All radiators must be covered by the nose cone of the bonnet.
- 1.6.2 All cars must be fitted with canvas reinforced hoses and screw type hose clamps **(NOT WIRE TYPE)**.

A pressure relief tap or a pressure relief cap must be fitted with the overflow directed to a reservoir not to ground

- 1.6.3 Radiators must be mounted in front of the motor.

#### **1.7 Fire Walls:**

- 1.7.1 Material to be: Lower part of the fire wall being the Engine plate; material to be steel or aluminium – fibreglass or carbon fibre is not allowed.
- 1.7.2 All cars must be fitted with a firewall between the engine and driver. Must be fitted as close as possible to 90° degrees to the main chassis rails. The driver must be completely behind the engine.
- 1.7.3 This firewall must extend from under the tray to the bonnet and must have as few openings as possible.

#### **1.8 Underpan:**

- 1.8.1 Floorpan must extend rearward from the front firewall to at least 75mm under the driver's seat and from chassis rail to chassis rail and be securely held in place. To be fixed by minimum 4x 8mm bolts or 6x 6mm bolts.
- 1.8.2 Minimum thickness:
  - 1.8.2.1 1.6mm Steel or 3mm Aluminium

## **1.9 Fuel System:**

- 1.9.1** The fuel tank must be suitably mounted and isolated from the engine compartment and cockpit (driver).
- 1.9.2** Steel/ Aluminium Tanks must be properly constructed. Fuel caps to be of type approved by the Technical Committee (check before installation if in doubt). When the cap assembly is jointed to the tank with a hose, two (2) clamps must be used on either end of the hose.
- 1.9.3** A clearly visible isolation tap is required to be fitted within easy reach of safety crew and fitted in the fuel line between the fuel tank and the Injection or carburettor, close to the tank but before the pump, labelled "FUEL ON/OFF" CLEARLY IDENTIFIED WITH TRIANGLE (triangle measuring 75mm x 75mm) by contrasting colour and fitted beside, below or above the tap.
- 1.9.4** Fuel lines must be clipped to the chassis at the intervals of no more than 300mm.
- 1.9.5** Where a fuel line is subject to vibration as in the connection of the fuel line from any point on the chassis to carburettor or injection, a flexible pipe must be used.
- 1.9.6** If fuel lines or pipes passing through any metal panel must be grommetted to prevent chaffing.
- 1.9.7** Fuel tank breather must be fitted with a one-way valve.
- 1.9.8** Electric fuel pumps must not be able to continue to operate if the engine is not running-except for a momentary prime on ignition start up.
- 1.9.9** Jerry cans as fuel cells are prohibited.
- 1.9.10** Plastic fuel cells to be mounted in four positions, with a minimum of size bolt of 3/8" or 10mm in diameter. A backing plate or washer of a minimums of 3mm thick and 40mm in diameter must be used to sandwich tank with its mounting bolts. Proprietary tanks with in-built mounting bolts are acceptable as supplied but mounting bolts must not be modified.

## **1.10 Brakes:**

- 1.10.1** Efficient hydraulic brakes operating on a minimum of three (3) wheels must be fitted, two (2) brakes to be on rear wheels and one (1) on the left front wheel.
- 1.10.2** If a car is fitted with a (one-piece) live axle, one (1) rear brake may be used and one (1) left front brake.
- 1.10.3** Disc brakes must be used.



**1.11 Nerf Bars:**

- 1.11.1** Bars attached to each side of the chassis and suitably braced to provide a fender for the rear wheels, must be fitted. Must be fixed to the chassis at a minimum of three (3) points. These are nerf bars, not bull bars. Scrutineer holds the right to not accept any nerf bar work that is deemed to be in excess of what is classified as suitable.
- 1.11.2** Extreme outside of the bars must not protrude past outside tyre edge.
- 1.11.3** Rear push bar is to be securely attached to the frame. The vertical down bar is to be extended under and forward from the tail, connection to the rear of the frame or rear pusher under bow.
- 1.11.4** Front nerf bar is to be securely fitted, to conform as close as practical to the contours of the body line.

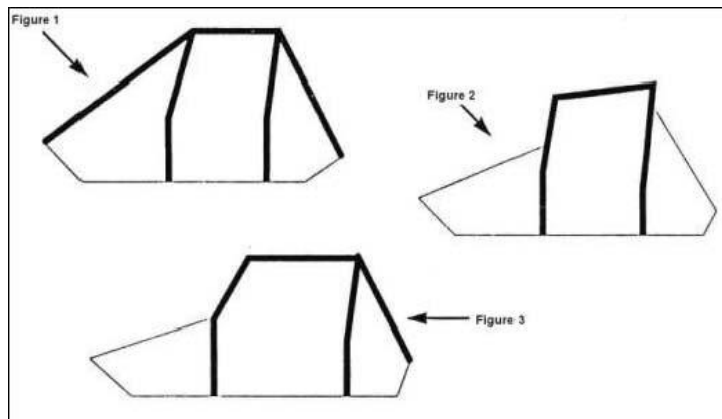


Illustration 1 – Roll Cage

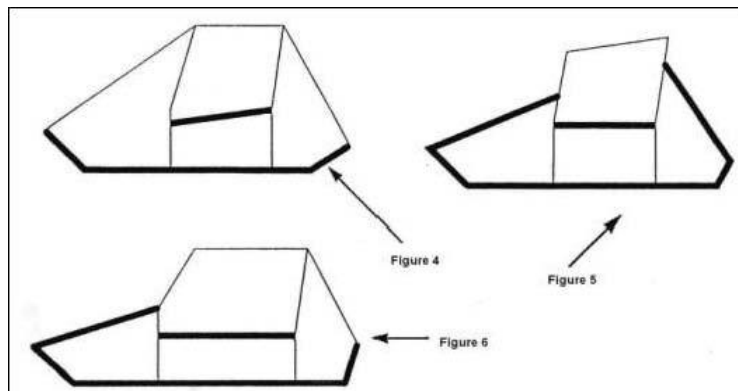


Illustration 2 – Chassis

## **1.12 Roll Cage:**

- 1.12.1** Extent of roll cage as per Illustration 1. Material to be Chromoly 4130 grade (Professionally welded).
- 1.12.2** Minimum size of material to be used 31.8mm x 2.5mm (1 ¼" x 0.95)
- 1.12.3** The lower mounting points shall be suitably attached to the chassis main frame.
- 1.12.4** Bright chrome or similar plating of roll cage is not permitted.
- 1.12.5** The procedure for measuring chassis/ roll cage material by the machinery examiner may be either:
  - 1.12.5.1** The use of an Ultrasonic tester-paint is to be removed where required by the machinery examiner/ or\
  - 1.12.5.2** A 2mm test hole may be requested by the machinery examiner.
- 1.12.6** Two (2) roll bars of single length steel tubing joined by cross bars at the top front to rear.
- 1.12.7** One (1) roll bar with two (2) side members extending forward and down to the front lower mounting. Each piece to be single length tubing with a cross bar joined at the top front corners.
- 1.12.8** Two (2) single side rails extending from lower rear mounting to lower front mountings with cross bars at the top front and rear.
- 1.12.9** Roll cage must have cross brace (3/4" diameter minimum) behind seat for shoulder seat belt support.
- 1.12.10** Overhead protection is not to be classified as being part of the roll cage and must not reduce the minimum specified intervals of the roll cage.
- 1.12.11** The minimum interval between the side rails at the top shall be 455mm and the minimum between the front cross bars and the rear cross bars shall be 560mm. If the overhead protection is used, it must conform to roll cage specifications regarding size and thickness of material.
- 1.12.12** The foremost point of the rear vertical bars at the top cross bar shall be no less than 25mm, rearwards of the driver's headrest with the upholstery removed and no more than 100mm rewards of that point.
- 1.12.13** The top of the roll bars shall be no less than 50mm above the driver's helmet with the driver seated in his normal position, including seat and upholstery, with his head erect.
- 1.12.14** Roll cage is subject to inspection and approval by the Technical Committee during construction, major modification, or major repairs, and following completion.
- 1.12.15** No holes are permitted in main cockpit bars or bracing unless fitted with tube spuds.

### 1.13 Chassis:

- 1.13.1 Extent of roll cage as per Illustration 1, Extent of chassis as per Illustration 2, Offset left rear chassis rail allowed for chain drive cars. Material to be Chromoly 4130 grade (professionally welded).
- 1.13.2 Chassis minimum 31.8mm x 2.5mm (1 ¼" x 0.95) or above main frame rails 34.9mm x 2mm (1 3/8" x 0.083"). **See also Specification B Exemption Rule**
- 1.13.3 Gusset rails as per figures 4, 5 & 6 in Illustration 2 to be minimum 25.5mm x 2mm (1" x 0.083")
- 1.13.4 Minimum size of material to be used in chassis structure other than roll cage and main chassis rails to be 19mm x 2mm (0.750" x 0.083").
- 1.13.5 No holes whatsoever are permitted in main chassis base or bracing unless fitted with tube spuds.
- 1.13.6 All top corners to be rounded and gusseted.
- 1.13.7 The above roll cage/chassis descriptions are a way to construct a roll cage as shown in the illustrations. Mass produced roll cage/chassis by engineer certified manufacturers constructed using a different method or tubing yet yield an equal or greater strength rating are permitted.

### 1.14 Dimensions:

#### 1.14.1 Wheel Base:

1.14.1.1 Maximum 1855mm (73")

1.14.1.2 Minimum 1650mm

#### 1.14.2 Overall Length:

1.14.2.1 Maximum 3270mm

1.14.2.2 Minimum 2730mm

#### 1.14.3 Overall Width:

1.14.3.1 Maximum width of 1650mm to be measured from far outside of rim to outside of rim (including bead locks). Each axle to be measured independently

1.14.3.2 Minimum width 1330mm.

### 1.15 Front Axle:

- 1.15.1 Tube type front axles must be a minimum of 38.1mm OD, 3.2mm tube thickness (1.500" by 0.120") Chromoly (4130 graded) tubing.
- 1.15.2 Optional larger OD Chromoly 4130 graded axles (1.75" x 0.095") allowed.

### 1.16 Heim Joints:

- 1.16.1 Heim Joints and/or rod ends, minimum size, 7/16" shank with 3/8" bolts for tie

rods, radius rods, Watts Link, drag link, panhard bar.

**1.16.2** Steel Heim joints be a minimum 13mm (1/2") shank and must be used on rear torsion bar arms to birdcages.

### **1.17 Self Starting Cars – Starter Motor:**

**1.17.1** Self starting cars must be fitted with a starter motor and 12 volt battery.

**1.17.2** Starter switch connecting power source to the power plant starter shall be fixed to the dash and must be easily accessible to driver.

**1.17.3** A separate starter button shall be fitted (separate to ignition switch).

**1.17.4** The starter motor must be capable of starting the car without aid of a push and enter the first race without the aid of a push.

### **1.18 Weight:**

**1.18.1** The maximum net weight of a car as ready to race without driver shall not exceed 500kg.

**1.18.2** Any weight added to the car must be securely bolted to the car with a minimum of two 3/8" bolts or as directed by the Club Technical Inspector. Bolts to be Grade 8 or better with lock nuts.

### **1.19 Wheels and Tyres:**

**1.19.1** Maximum overall circumference 2160mm (85").

**1.19.2** Minimum overall circumference 1219mm (48").

**1.19.3** Motorcycle tyres and or wheels shall be prohibited.

**1.19.4** Maximum rim width to be no more than 305mm (12").

**1.19.5** Hub nuts and axles must not extend past the outer wall of the tyre.

**1.19.6** Right rear tyre – minimum tyre pressure to be 69kpa (10psi). This does not apply if proprietary bead locks are fitted.

**1.19.7** Lightening of proprietary wheels is **PROHIBITED**.

**1.19.8** Wheels must be manufactured from steel, aluminium or magnesium alloy only. Carbon Fibre or Cast Iron are not allowed.

### **1.20 Steering:**

**1.20.1** Main construction of steering wheel to be one (1) piece metal ie. H/T steel or aluminium – consisting of at least 3 spokes and a rim,

**1.20.2** Wheels must be so placed that the driver has easy entry and exit and has control over the car at all times.

**1.20.3** The Technical Committee may, in the interest of safety, demand adjustment or modification of the steering gear.

**1.20.4** No welding is permitted. Except in the case of proprietary parts that are

welded during manufacture. Any components of the steering assemblies are to be crack tested at the request of the Club Technical Committee or the National Technical Committee.

- 1.20.5 No part of the steering linkage shall be brazed.
- 1.20.6 Steering ratio shall be such that a maximum of one (1) full turn and a minimum of ( $\frac{1}{2}$ ) of one turn of the steering wheel is required to move the front wheels from one (1) maximum turning angle, to the other maximum turning angle (ie from full right lock to full left lock).
- 1.20.7 Proprietary quick release mechanism to release the steering wheel must be fitted.
- 1.20.8 Non-standard quick release steering hubs are to be approved by the Technical Committee before being fitted to the car.
- 1.20.9 No hollow bolts on Steering Linkages.
- 1.20.10 Steering stops and Heim joints washers are optional.

#### 1.21 Power Steering if fitted:

- 1.21.1 Pressure hoses fitted to power steering systems shall have a minimum burst pressure of 1500psi on the pressure side

#### 1.22 Exhaust System:

- 1.22.1 Must be securely attached to the car and must not be within 75mm of the edge of the seat.
- 1.22.2 The end of the low set exhaust must be beaded if exit to the side.
- 1.22.3 High set pipes on the driver's side, higher than the nerf bar, must be directed away from the driver.
- 1.22.4 Safety device to be fitted to secure the muffler to the car to prevent the muffler falling.
- 1.22.5 All cars must be fitted with an effective muffler. This muffler must not exceed the maximum DBA reading allowed by the racing venue allows (enforced by the Chief Steward).
- 1.22.6 The word "muffler" implies "being of sound construction and mounting with a DBA reading no higher than the racing venue allows (enforced by the Chief Steward)".
- 1.22.7 Sound construction excludes slotted pipes, chicken wire inserts and perforated beer cans, etc. These are **STRICTLY FORBIDDEN**.

#### 1.23 Bonnet:

- 1.23.1 Bonnets must be securely fastened by strap or other approved fastener. Tool operated fasteners are **NOT PERMITTED**.

1.23.2 Locking of bonnets is **PROHIBITED**.

1.23.3 Any engine compartment flow through ventilation must not exhaust into the driver's face. All flow through ventilation must exhaust to the side. Any open-topped bonnets must be capped with a minimum of 25mm overlap of opening and sealed at rear. Cap spacing to be a minimum of 25mm above opening.

1.23.4 All bonnets to be sealed at the rear.

#### 1.24 Body Work:

1.24.1 Cars must be complete and neatly executed with no loose or insecure panels.

1.24.2 Tail ends of fuselage are compulsory and must extend beyond the rear wheels and must be the same shape as speed cars and sprint cars.

1.24.3 All cars must be painted and appear at the track in a presentable manner.

1.24.4 Nothing must protrude past sidewalls of tyres, eg Nerf bars, exhaust etc.

1.24.5 Cockpit side protection panels (arm guard panels) must be fastened with dzus type fasteners that can be undone by hand. Tool operated fasteners are **NOT PERMITTED**. Cockpit side protection panels can extend to the rear most down bar of the roll cage and must not hinder the driver's vision and must not be higher than the bottom edge of the driver's helmet.

1.24.6 **ALL CARS MUST BE FITTED** with a mandatory right side helmet restraint (net) unless a proprietary full containment seat is used. The fitting of a quick release left side helmet restraint (net) is optional.

#### 1.25 Fasteners

1.25.1 All bolts shall be Grade 5 or better.

1.25.2 All bolts shall have one of the following anti-loose mechanism installed:

1.25.2.1 "Nyloc" or "Cone Lock" or other proprietary lock nuts approved by the machinery examiner.

1.25.2.2 Stainless steel tie wire attached to a fixed object. i.e All bolts without lock nuts must be drilled & lock wired.

#### 1.26 Seats:

1.26.1 Material to be sheet steel or aluminium – fibreglass or carbon fibre is not allowed.

1.26.2 High back seats are mandatory and are to be of contoured form affording to upper thighs and base of spine. Back support to be a minimum of shoulder height. Head rest section to extend to at least the top of the helmet. To be of sound aluminium construction minimum thickness 1.6mm to be plated at mounting points and to be safety edged. All seats are to be reinforced in the through bolt area and back support and headrest to form a one piece construction.

1.26.3 Seat must be securely mounted in 4 places, 2 in the base and 2 in the back.

- 1.26.4** All cars are to have bracing under seat and a plate 150mm x 200mm x 3.0mm steel or 150mm x 200mm x 6mm aluminium to protect under side of seat or a minimum 25.5mm (1") x 2mm bar to the rear of under the seat to prevent the occupant from being injured by a damaged driveline or differential. Chain drive cars to be exempted from this rule.

## **1.27 Wings:**

- 1.27.1** All cars to be fitted with a wing securely mounted on the top of the roll cage in four (4) separate positions as far apart as possible.
- 1.27.2** The wing, when mounted in its most rearward position, must not extend past the vertical line of the rear crash bar. Rear stays bolted outside of roll cage and long enough not to enter the cockpit area in the event of a roll over.
- 1.27.3** The maximum width on wings shall be 1300mm, measured at the extreme outside edges of the wing, including all bracing.
- 1.27.4** When the wing is mounted on a vehicle a minimum of 50mm of tyre must extend past the outside edge of the wing (measured to the side walls of the right rear tyre or the wheel rim, whichever is the furthest point). Measured in the vertical plane with the car in race ready trim. If the top wing extends past the extreme left hand tyre it must be centrally mounted.
- 1.27.5** Rudder panels or similar will **NOT BE ALLOWED**. Cockpit side panels shall not extend beyond the rear of the roll cage.
- 1.27.6** All wings to be constructed in a safe manner, being of metal construction with a steel or aluminium frame, welded, bolted or riveted together. The metal covering must be bolted or riveted to this frame. Suitable bracing must be used to stop the sides of the wing from flexing or becoming detached from the wing. All horizontal edges are to be safely beaded.
- 1.27.7** Wing fasteners are to be attached independently of wing mounts.
- 1.27.8** All top wings to be mounted with quick release type fasteners.
- 1.27.9** A parallel horizontal gap minimum of 200mm to be between the top of the cockpit side panel and the bottom edge of the right hand wing side sheet.
- 1.27.10** Front wings are mandatory, must not be any wider than 900mm, side boards no higher than 300mm and must be fitted to the front part of chassis at the position of the front axle.

## **1.28 Presentation:**

- 1.28.1** All cars must be upright midget or sprintcar style.
- 1.28.2** All sharp and protruding edges on cars shall be:
- 1.28.2.1** Covered with a protective padding OR
  - 1.28.2.2** Rounded off so as not to present a sharp point.
- 1.28.3** Split pins or locking nuts **MUST BE USED** on all external bar work.
- 1.28.4** Car numbers shall be clear and easily identifiable.

**1.28.5** The numbers shall be a distinct contrasting colour to that of the background and placed on:

**1.28.5.1** Car numbers shall be clear and easily identifiable. Numbers are to be on – both sides of the big side (left side) of the top wing. Minimum size being 380mm in height on the main sides, but the outward facing inner panel may be smaller at a minimum height of 250mm.

**1.28.5.2** Both sides of the tail end of fuselage (minimum size of each individual number being 250mm x 50mm).

**1.28.5.3** No advertising signs or drawings will be allowed on the tail of the car if such advertising obstructs or prevents the recognition of that cars number.

**1.28.5.4** Any number on a car that may be misconstrued as being a racing number may be deemed illegal by the Chief Steward.

### **1.29 Fuel:**

**1.29.1** Methanol fuel only permitted. Fuel containing any petroleum based additive, nitro methane or other oxygen producing additives are not permitted.

**1.29.2** Maximum specific gravity permitted is 0.800. All fuels are subject to testing at any time, any deviation from these specifications will result in the immediate disqualification of those in question.

### **1.30 Seat Belts:**

**1.30.1** All cars must be equipped with a five (5) point safety belt securely attached to the chassis at a minimum of five (5) points and fitted with a quick release buckle and made to comply with relevant Speedway Australia minimum safety standards.

**1.30.2** Should a serious accident occur, the Chief Steward has been deemed the Authority to confiscate the belts in question.

**1.30.3** Seat belts are to be suitably retained near the top of the seat to prevent them from spreading at the shoulders. **SEAT BELTS MUST BE WORN AT ALL TIMES.**

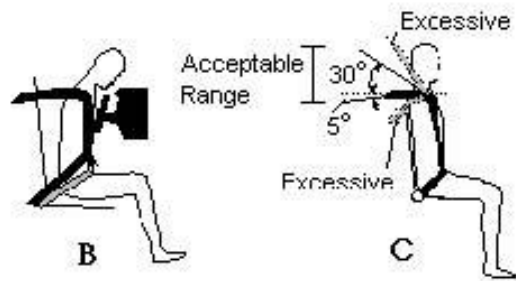
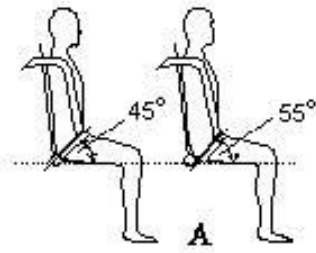
**1.30.4** A suitable bar should be fitted to your chassis, behind your seat to retain the seat belt height of no less than 75mm below shoulder height.

**1.30.5** The attachment points must provide the optimum geometry to minimise movement of the belts. Lap belts perform best when they act an angle between 45° and 55° relative to the longitudinal axis of the vehicle as illustrated in Part A of the Figure. This angle permits the lap belt to react to the upward pull of the shoulder harness. A system installed shallow belt angle, as shown in Part B of the Figure, permits the shoulder harness to pull the lap belt up off the pelvic area and into the abdominal region with the likelihood of injury to internal organs. The end attachments of the shoulder harness must also be installed at appropriate angles. The ideal position is anywhere between 5° below and 30° above the driver's shoulder, as seen in Part C of the Figure.



Reference Figures:

SFI Proper Seat Belt Installation



## 2.0 Specification A – Litre Sprint

### 2.1 Maximum engine capacity and minimum vehicle weight

- 2.1.1 Measured with car and driver as coming off the track.
- 2.1.2 1500cc + 5% for push rod and single overhead cam maximum two (2) valves per cylinder (420kg).
- 2.1.3 1200cc + 5% for twin overhead cam engines maximum two (2) valves per cylinder (420kg).
- 2.1.4 1100cc + 5% for engines with more than two (2) valves per cylinder (420kg). (only for engines manufactured up to 1996).

### 2.2 Engine Management Systems

- 2.2.1 Computer or electronic engine management systems may be used.

### 2.3 Driveline & Transmission

- 2.3.1 Diff Driven Vehicles:
  - 2.3.1.1 Proprietary quick-change differentials must be used.
  - 2.3.1.2 All drive shafts in diff driven cars must have a suitable torque tube setup from engine to differential. **ALL CARS WITH A DIFFERENTIAL MUST BE FITTED** with a mandatory Torque Tube Hoop/Strap securely attached to both torque tube and chassis. A torque tube shatter shield is recommended but not mandatory.

## **3.0 Specification B – Lightning Sprint (Bike Engines)**

### **3.1 Maximum engine capacity and minimum vehicle weight**

- 3.1.1** Measured with **car and driver** as coming off the track
- 3.1.2** Up to 1000cc Motorcycle Stock Engine (430kg).
- 3.1.3** Up to 1200cc Motorcycle Stock Engine (465kg).

### **3.2 Engine Specifications**

- 3.2.1** A stock motorcycle engine is a production, 4 cylinder, self-starting street motor, produced for and procured from a USA (or Australian) street-legal motorcycle maximum 1200cc. Engines must be a minimum of 2 (two) years old dated from the later year of the incumbent season.
- 3.2.2** All replacement parts are to be replaced with original factory replacement parts or aftermarket parts of same factory configuration. Any aftermarket ignitions, exhausts, velocity stacks, carburetors, and chain tensioners are permitted.
- 3.2.3** Mechanical or electronic injection allowed. Aftermarket fuel mapping systems allowed.
- 3.2.4** Dry sump system is optional. Modified or aftermarket wet sumps and relocation of the oil pickup allowed.
- 3.2.5** No internal modification of the engine (including configuration), clutch type or transmission including removal of drive gears, grinding, filing or altering of ports. With the following exceptions: the counter balancer may be removed, slotted cam gears and weight matching of rods (One rod must be untouched), after market rods, after market clutch kits, pistons to maximum compression ratio of 13.5:1. Where aftermarket parts have been used the assembled weight of the CONROD/GUDGEON PIN/PISTON can be no less than 97 percent of the OEM assembly produced for that year model of engine.
- 3.2.6** Aftermarket conrods are allowed to be used as a replacement part providing they meet the following criteria: Are steel in construction, must be the same length as the OEM specification and the same configuration. No aluminium or titanium conrods are allowed.
- 3.2.7** Anti-slip modification of clutch for longevity is allowed but must maintain the normal operation, integrity and configuration of the clutch.
- 3.2.8** Removal of carbon deposits in ports is permitted. No removal of head material and/or modification of valve seats, Stainless valves may be used.
- 3.2.9** No milling of the cylinder head, with the exception of clean up purposes only. A 0.020" maximum of head clean-up allowed. This cannot result in compression limits above the established figures. Additional removal must be compensated by adding base gaskets to resume compression.
- 3.2.10** Any engine may be bored for rebuild or clean-up purposes, up to a maximum of 1mm oversize, provided that stock configuration pistons and rings are used

and the maximum displacement and maximum compression limits are not exceeded.

**3.2.11** Gap less rings (total seal) may be used.

**3.2.12** Compression ratio by bubble tester to verify maximum compression ratio of 13.5:1 and factory capacity.

### **3.3 Engine Management Systems**

**3.3.1** Computer or electronic engine management systems may be used.

### **3.4 Chassis & Roll Cage Exemption Rule**

**3.4.1** Chassis and Roll Cage minimum 31.8mm x 2.5mm (1 ¼" x 0.95) for all main frame rails.

### **3.5 Driveline & Transmission**

**3.5.1** Chain drive or differential drive may be used.

## **4.0 Appendix 1- Production Engine Trial**

### **Production Engine Trial**

The goal of the concept for the production engine is to provide a “low cost” option for current and prospective competitors to be able to compliment and competitively race against the current configurations without making the current configurations redundant.

“Low cost” engine divisions are receiving higher growth in competitor numbers than any other divisions, Lightning Sprints will provide this option to secure its future in the sport. QLSRA will retrieve any data already collected on control engines from within Lightning Sprints and any other divisions of racing.

Any competitors willing to take part in the trial the engine must comply to a feasibility criteria at the discretion of the QLSRA committee such as:

- 4.1** Preferred allowable modifications.
- 4.2** Evidence of availability.
- 4.3** Budget cost analysis of replacement.
- 4.4** Include a starter motor as mandatory
- 4.5** Parity and restriction measure which may be utilised such as:
  - 4.5.1** Minimum car weight
  - 4.5.2** Restrictor plate (or maximum inlet &/or exhaust port area)
  - 4.5.3** Rev limiter
  - 4.5.4** Controlled ECU (suggest restricted with ignition only to allow for tuning of fuel maps or use with mechanical injection)
  - 4.5.5** Or any other measures that may be suggested.
- 4.6** The competitor shall provide a proposal to the committee with all relevant information that may be requested by the committee prior to commencement of the trial.
- 4.7** Details of any alterations / modifications required after the commencement of the trial shall be provided to the committee prior to competing with the engine.
- 4.8** QLSRA committee reserves the right to prevent the competitor from competing with the trial engine at any time.

## **5.0 Appendix 2 - Additional Rules for Drivers**

### **5.1 References**

- 5.1.1 To be read in conjunction with current Speedway Australia Racing Rules & Regulations.

### **5.2 General**

- 5.2.1 Licences – All licences will be issued as per Speedway Australia licencing.
- 5.2.2 Log books are issue to the car concerned and are not transferrable to other cars. Log book must be presented to machinery examiner at every race meeting. Drivers not in possession of log book at inspection prior to any race meeting will be liable to a fine or disqualification from racing. Log books will be renewed when required, pages will be numbered and loss of log book without reasonable explanation will incur a \$50 fine.
- 5.2.3 All cars will undergo technical and safety inspection prior to every race meeting. Cars must pass tech/safety inspection sheet and documented in cars log book by the machinery examiner.

### **5.3 Safety Equipment:**

- 5.3.1 All safety equipment is to comply with the current Speedway Australia minimum safety standards.
- 5.3.2 Modification of proprietary safety equipment is not permitted.
- 5.3.3 It is the driver's responsibility to ensure that all his/her safety equipment is compliant with and used in accordance with, Speedway Australia Rules and Regulations at all times.
- 5.3.4 Helmets, Neck Restraints, Arm Restraints and Protective Clothing are mandatory and must comply with Speedway Australia Rules and Regulations at all times.
- 5.3.5 Knee supports for steering boxes are recommended but not mandatory.

### **5.4 Driver Grading**

- 5.4.1 Any returning driver (after 3 consecutive seasons away) may be required to start at least 1 meeting from the rear of the field regardless of grading.
- 5.4.2 B Grade Rookie (BR) – Remains a rookie for the opening season and starts from the rear of the field until 3 meetings complete. The event chief steward may over rule if driving requires continued starts from the rear.
- 5.4.3 B Grade Driver (B) – Is a driver within the field who has already passed rookie status in seasons prior; OR is continuing as a B Grade driver; OR any driver returning after at least 3 consecutive seasons away from the division.

- 5.4.4** A Grade Driver (A) – Is an experienced driver who was upgraded having won a B Grade overall club championship; OR placed on at least 3 podiums in the season (at home club or any blue ribbon events); OR was recognised prior to 2016 as an A Grade driver; OR was granted status in recognition of prior experience such as titles won in this division.

## **5.5 Title and Blue Ribbon Events**

- 5.5.1** QLSRA reserves the right to refuse any driver entry to a blue ribbon event including titles and will provide reasoning behind the decision.
- 5.5.2** Nomination for Blue Ribbon and Title events may be restricted to A and B Grade drivers. Rookies must have been given endorsement (or discretionary approval from the committee) to be eligible to run a title or Blue Ribbon event.

## **5.6 Protests:**

- 5.6.1** Engine protests must be in writing within 24 hours of the event and advised directly by the driver lodging the protest to the machinery examiner within 20 minutes of the completion of the A main feature race. Any driver that starts the main may protest any car in the A main.
- 5.6.2** Valve cover pulled to check cams and valve train – fee \$40
- 5.6.3** Head pulled only and inspected for infractions – fee \$300
- 5.6.4** Motor pulled down and pan removed and inspected for infractions – fee \$600
- 5.6.5** Clutch inspection – fee \$80
- 5.6.6** If protested motor is found to be legal, protest fee less administration costs is awarded to car/owner. If found to be illegal, protestor receives all his/her money back. Administration costs will be fined to the driver/owner of car with infractions issued
- 5.6.7** Fines are to be paid before driver/owner will be allowed to race again. Said car with infractions must comply with all rules and regulations before racing again.

## **5.7 Penalties:**

- 5.7.1** Underweight or non-compliant cars will result in an automatic disqualification (from that race) and will result in loss of points and money for that night (if after a feature race).
- 5.7.2** Fuel or engine infractions
- 5.7.2.1** 1<sup>st</sup> Offence – 12 Month suspension from date of infraction, \$1000 fine

and loss of points for the season to date.

**5.7.2.2** 2<sup>nd</sup> Offence – Life ban from competing in the division within QLD.

**5.7.3** Rough driving is determined by the chief steward and will not be tolerated in any way. All infractions issued by the chief steward, however if the chief steward issues more than 1 infraction to the same driver at the same race meeting, that driver will be disqualified from the rest of the meeting. If said driver continues to receive infraction at further race meetings, said driver may receive a suspension at the discretion of the chief steward and club committee.