

SIDECAR TECHNICAL REGULATIONS

Sidecar: A vehicle with three wheels making two tracks on the ground in the direction of travel with a permanently attached sidecar forming a complete integral unit.

T9-2-1 All sidecars must be inspected by an approved Official of Speedway NZ who shall have the authority to prohibit any machine or equipment he considers unfit for racing purposes. Such decision to be final.

T9-2-2 Brakes:

Any brake on motorcycle sidecar is prohibited.

T9-2-3 Construction

- (a) The tubing used in the construction of the mainframe of a motorcycle sidecar shall have a minimum diameter of 25mm and minimum wall thickness of 1.5mm.
- (b) The use of light alloys in the construction of the frame and front forks is forbidden.
 - (i) The front fork yokes or device to transfer load from the legs to the steering head are not to be a fabrication of an aluminium alloy. Extruded one piece or machined from billet aluminium of good design is acceptable. If U-bolts are used a minimum of 8mm diameter on 32mm fork legs.
 - (ii) All bushed shock mounts must be fitted with non-pull through washers or fit inside a double bracket to ensure shocks cannot pull through their mount bolt.
- (c) The height of any part of a Sidecar to be no higher than ONE (1.2) metre (at time of measurement, both wheels are to be in a straight line).
- (d) The use of titanium is forbidden (except engine parts and exhaust systems)

T9-2-4 Engine

- (a) The cubic capacity of the machine is limited to 1,045cc, and only the rear wheel of the machine shall be driven.
- (b) On liquid cooled engines an overflow pipe must be used which directs any overflow of coolant away from the rider and passenger.
- (c) Engines shall be covered by a fuel tank or guard to ensure the engine cannot be contacted by the rider's body.
- (d) Electronic Fuel Injection systems are permitted.
- (e) Any engine inspected and found to contravene the rules will be declared an illegal engine.
- (f) Fuel tanks must be constructed of a material that neither shatter or splinter upon impact.

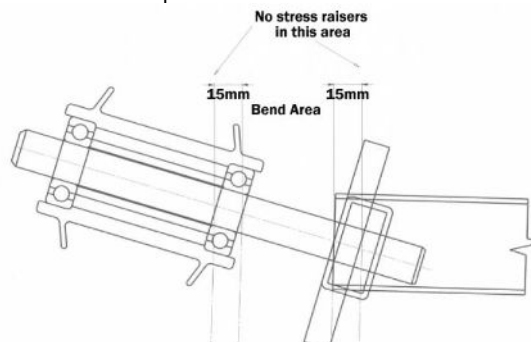
Frames built after July 2009:

Fuel tanks must be mounted to the rear of the steering headstock.

T9-2-5 Wheels and Tyres

- (a) The centre lines of the tracks made by the front and rear wheels of the motorcycle, when the machine is proceeding directly forward, must be no further apart than 75mm, with the sidecar wheel no further forward than half the distance of the wheelbase.
- (b) Sidecar wheel must be cambered inwards. No outward camber is allowed. The inclination angle of the Sidecar wheel must be between 25 degrees and 53 degrees.
- (c) Any wheels with slotted hubs must have bolts fitted between the spoke heads.
- (d) Wheels if constructed of the full disc type, aluminium or steel, to have a minimum disc wall thickness of 2.5mm for aluminium and 1.2mm for steel, and dished 50mm over diameter.
- (e) The centre hub to be shouldered with the disc affixed to the rim also by a continuous bead or weld, although a gap is allowable to make provision for the tyre valve.
- (f) Front wheels of motorcycles to be fitted with knock-out spindle or an approved clamp to fasten on fork tips.
- (g) Front wheels may have a safety guard fitted on the left hand side when viewed from the riders seat. Guard to be within the confines of the rims outer lip and fully cover the spoking.
- (h) Any tyre with knobs or lugs protruding out past the side walls are not permitted on the front wheel.
- (i) The one rear wheel and one rear tyre of a sidecar shall not exceed 125mm maximum tread width and have a maximum diameter of 475mm 19inches, speedway pattern tyres only to be used. Rear wheel safety guard/disc covering spokes is not required when the wheel is fully enclosed by mudguard no higher than 170mm from the ground.
- (j) All three wheels and tyres to be of motorcycle configuration and have a minimum rim diameter of 400mm.
- (k) The drive shall be transmitted to the ground only through the rear wheel of the motorcycle.
- (l) Rear mudguard must be fitted, and extend from the rear seat to a maximum of 170mm from the ground with the sidecar laden and must be fitted with either:-
 - (i) a one piece flexible mudflap without any slots which:
 - (i) is a minimum thickness of 6mm and be reinforced belting type rubber.
 - (ii) ends no more than 20mm above ground level with the sidecar laden.
 - (iii) is attached to 3 sides of the mudguard and projects forward by a minimum of 75mm on each side.

- (m) All sidecar machine rear fork legs to have an enclosed axle eye.
- (n) The rear wheel must have a safety guard fitted on the right hand side when viewed from the riders seat. Guard to be within the confines of the rims outer lip and fully cover the spoking.
- (o) The sidecar wheel must be contained within a continuous 25mm horizontal crash bar, fixed rigidly to the sidecar platform at sidecar floor height. Any open area in the sidecar platform inside the continuous crash bar and on the running board on the nearside, must be filled with a suitable material to prevent either the rider or passenger from trapping their feet. The inside of spoked, cast or welded wheels must be covered with a disc or shield. Sidecar wheel spindle minimum diameter is 20 mm. One sided alloy ex brake drum hubs are not to be used as sidecar wheels.
- (p) The sidecar axle to have no stress raisers in the bend area.
 - (i) The bend area is from the sidecar inner wheel bearing face to the first fixed mounting part of the chassis plus 15mm each way (see diagram below).
 - (ii) A stress raiser is a thread, notch or groove and or a change in diameter. A change in diameter must have a suitable smooth radius. Minimum radius is 6mm.
 - (iii) Sidecar axle must display a permanent serial number, Axle to be crack tested (non-destructive testing) with inspection certificate before CVI. Inspection date and serial number to be recorded on inspection certificate.



T9-2-6 Exhaust Pipe

- (a) The exhaust pipe must be fixed to the cylinder head and frame with a minimum of three (3) clips (the point of fixture at the cylinder head is considered one clip). The silencer must be fixed to the frame with at least one clip.
- (b) Exhaust pipes and silencers may be of a "baffle" or "absorption" type and must fulfil the requirements concerning sound control. Additionally a second flexible coupling must be fitted from the first third of the silencer to the frame (Steel cable of at least 3mm dia. For reasons of safety) or a solid steel spring.
- (c) Exhaust fumes must be discharged towards the rear but not in a manner as to raise dust, foul the tyres or inconvenience the passenger, or any other riders.
- (d) **Frames built after July 2009:**
The entire exhaust system must be contained within the fairing, to ensure that the exhaust system cannot come in contact with any other rider, passenger, or motorcycle.

T9-2-7 Handle Bars

Handle bars must not be of greater width than 900mm and must be securely capped or plugged. When light alloy handle bars are used, the distance between the two extremities of the clamping area (or of the 2 clamps) must not be less than 120mm. The repair by welding of light alloy handlebars is prohibited.

T9-2-8 Hand Hold

A suitable hand hold must be provided for the passenger on the offside of the rear wheel of the machine. Offside is left hand side when standing at rear of machine facing forward.

T9-2-9 Throttle Cut-out

- (a) A device must be fitted to ensure that the ignition can be interrupted, must be mounted on the handlebars not more than 100mm from the throttle and securely attached to the throttle operation wrist by a cord no longer than 300mm in the fully extended length, of a non-elastic material.
- (b) The interrupter must operate in the primary (low tension) circuit of the ignition system.
- (c) All throttle controls must freely return closed when not held by the hand. The use of a twin cable push/pull throttle assembly to assure positive closing of the throttle valve(s) is mandatory from 2016/17 season.
- (d) All throttle linkages, shafts and exposed cable liners must be shielded to prevent dirt or foreign material from directly contaminating them and restricting movement. The shield must be easily removable for inspection of the mechanism.

T9-2-10 Skid Plate

A skid plate may be fitted on the underneath side of motor which is to extend from the front of the motor to the rear of the gearbox. The skidplate is to have a smooth finish and lead in and to be free of sharp edges and nuts and bolts.

T9-2-11 Dimensions

- (a) The overall length from leading edge of the front tyre to outside of rear mudguard must not exceed 2600mm.
- (b) The overall width must not exceed 1500mm.
- (c) The wheelbase measured from the centre of the front spindle to the centre of the rear spindle, must measure between 1280mm and 1800mm.
- (d) The wheel track, measured between the centre lines of the track left by the rear and sidecar wheels, shall be a minimum of 500mm and a maximum of 1100mm.
- (e) The width of the running board on the right of the motorcycle must not exceed 400mm.
- (f) The angle of inclination of the main body of the motorcycle must not exceed 10 degrees from the vertical.
- (g) For FIM competition only: The minimum ground clearance at any point of the sidecar shall be 75mm unloaded.
- (h) Minimum Weight is 180kg.

T9-2-12 Chain Guard

Chain guards must be fitted so that the primary chain and sprocket is enclosed. A guard for the chains must be so constructed that a hand or foot cannot come into contact with the chain.

T9-2-13 Floor

The sidecar floor to be of sound construction and to fully cover area from front of crankcase to rear axle 100mm tolerance.

T9-2-14 Attachment

- (a) If the sidecar attachment to the motorcycle is not an integral part of the chassis, it must be fixed in at least 4 places in conjunction with Rule T9-2-14 (b, c, d).
- (b) Two diagonal braces must be fitted of not less than 20mm x 1.5mm wall thickness to the unit from the top half of the motorcycle frame and to the outer edge of the side car frame.
- (c) One to be placed in the front position of the sidecar, one to be placed in the centre or to the rear of the sidecar and the other two attachment points to bottom side of motorcycle frame.
- (d) If rod ends are used, the minimum size shall be 12mm.

T9-2-15 Fairings

The outside of the sidecar wheel and tyre must be covered by a non-rotating shield or fairing. This fairing must be securely fixed to the sidecar and outside of the crash bar.

- (a) Fairings or streaming or any cover must not be closer than 20mm to the front forks or tyre in any steering position and no further back than the exterior of the rear rim.
- (b) Fairings must be constructed of a flexible nature, either plastic, carbon-fibre or fibreglass and must remain flexible on the machine.
- (c) No metal or aluminium fairings are allowed.
- (d) No frame member or mounting point shall be outside the fairing, with the fairing attached to the motorcycle chair in no more than 8 (eight) places.
- (e) The fairing to have all corners and ends rounded, especially the front left corner of the chair.
- (f) Should a fairing be damaged or removed, no mounting point must be exposed.
- (g) The height of any part of a sidecar to be no higher than 1.2 metre.
- (h) The minimum clearance between streamlining, fairings or nose cones and the ends of the handlebars or their attachments is 30mm with the front wheel in any position. No aerofoils or similar devices are permitted.
No part of any nose cone or fairing may extend beyond a vertical line drawn through the leading edge of the front tyre.
No part of the sidecar fairing may extend beyond a vertical line drawn at a tangent to the rear edge of the back tyre.
- (i) No part of the Fairings, Streamlining or framework may come into contact with the ground when the rear wheel only is raised 300mm from the ground.

T9-2-16 Fuel

Refer also to E5-1 and E5-2. <https://www.speedway.co.nz/asset/downloadasset?id=65387582-26fc-49fe-932c-d1eb3578322d>

The use of fuel outside of specifications or blended fuel, will be declared an illegal fuel.

T9-2-17 Racing Numbers (Please refer to Section T7)

- (a) All sidecars to have front number plate between side wheel and steering head 200mm in diameter, e.g. BMX type plastic number plate, with maximum 2 digit numbers, 150mm high and 30mm thick, legible and of contrasting colours.
- (b) **Track Code Size:** Letters to be at least 50mm high, with a stroke width of at least 7mm.

- (c) Bibs or T-shirts may be worn, but must be tight fitting and of tidy appearance. Riders must have a visible number on their back.

T9-2-18 Articulated Sidecars

Articulated Sidecars are strictly forbidden. Four point mounted sidecars may be adjustable and locked in position, but only when stationary.

T9-2-19 Dangerous Construction

The Steward of the meeting may exclude any vehicle, the construction of which he deems to be dangerous and shall give full effect to these Regulations by requiring the Scrutineer to check every vehicle prior to its taking part in any competition. Unnecessary equipment (such as inter alia lamps, horns and speedometer, exhaust pipes directed so as to raise dust, spikes or other attachments to the tyres) may be deemed dangerous. The directions given by all Officials must be strictly obeyed.

SIDECAR RACING REGULATIONS

R9-3-1 Competitors

- (a) A Sidecar will be operated by two licensed competitors.
- (b) Any rider(s) lapped or about to be lapped by the leading rider shall be shown the black flag and must retire safely from the race.

R9-3-2 Flags/Lights

- (a) The following flags shall be recognised as the standard colours to be used as signals to competitors during the race:

<i>Green</i>	<i>Start</i>
<i>Amber</i>	<i>lights or flags are used before race starts and after race finishes</i>
<i>Red</i>	<i>All competitors stop</i>
<i>White</i>	<i>Last lap for individual competitor</i>
<i>Black flag/board</i>	<i>Competitor to retire from race immediately</i>
<i>Black & White Chequered</i>	<i>Finish</i>
- (b) The green light to be on continuously while race is in progress.
- (c) When a red flag or red light is shown competitors must immediately stop.
- (d) Failure to do so will render a competitor liable to a fine and/or exclusion for any period.
- (e) In the event of a race stoppage during a sidecar race, in addition to the red lights, red flags shall be displayed at the entrance to each bend.
- (f) When signals are given by flag and blackboard, the flag or blackboard should be at least 0.371m² (4 square feet) in area.

R9-3-3 Punctuality in Starting

- (a) Competitors shall always be prepared to start in accordance with the programme and when called on to do so. Any competitor not prepared to start within reasonable time after being called upon shall be excluded from the race.
- (b) A competitor shall be excluded from the race if he delays the start by more than two (2) minutes in all, in any one race. The two (2) minutes shall commence once the competitors have been called to proceed to the race start line and shall be calculated from the times or estimated by the Referee until his vehicle is again running under its own power. Notification of the commencement of the two (2) minutes shall be by bell, horn and or flashing amber light. A fully visible countdown clock display used in conjunction with the flashing light may replace the bell or horn.
- (c) Riders in consecutive heats be allowed 5 minutes between heats.

R9-3-4 Starting Position

- (a) Helmet Colours must be worn to denote starting position.

R9-3-5 Heats

- (a) Starts may be arranged in heats. The arrangement and constitution of heats will be determined by the Promoters and shall be published in the programme, if any.

The Referee shall start the race and will also operate the green light indicating a start is imminent.
- (b) A competitor shall start in the heat which has been allotted to him unless by permission of the Clerk of the Course of the meeting.
- (b) A competitor may change his vehicle in subsequent heats, semi finals or finals, provided the Clerk of the Course is notified.
- (c) Only those competitors qualified in their heats shall take part in the semi finals and only those competitors qualified in the semi finals shall take part in the final.

R9-3-6 Starts

- (a) Line(s) across the track shall indicate the start and finish of the race.
- (b) **Standing Start**
 - (i) In the case of the standing start the starter may allow two (2) pushers off to assist a competitor whose machine stalls in moving up to the forward foul line.
 - (ii) On the order of the Clerk of the Course, riders must together leave the pit area and proceed by the shortest practical route to the starting tapes where they shall stop under the control of the Starting Marshall with front wheels close to the tapes.
 - (iii) The Referee once satisfied that the riders are correctly positioned and stationary, shall switch on the green light indicating to the Starting Marshall that the start is imminent and that he must leave the course.
 - (iv) After a pause sufficient to enable the riders to open up their engines and fix their attention on the tapes, the Referee shall release the gate.
 - (v) A rider taking up the wrong position or not complying with the instructions of the Starting Marshall or for any other reason impeding the gate to rise, or the race to start, shall be either fined or excluded.

- (vi) A rider/sidecar team who allows their motorcycle to touch or break one or more tapes of the starting gate after the referee has switched on the green light must be disqualified. The heat must then be started properly.
- (vii) A rider who has been excluded for breaking the tapes shall not be entitled to start money.
- (viii) If, because of faulty operation of the gate or for any other reason, the Referee or Starting Marshall considers the start to be incorrect he shall immediately stop the race with the 'stop' signal and order a restart which the riders shall occupy their original starting position.
- (ix) After the green light has been switched on (or other starting warning given) or the start machine released, no outside assistance may be given to any rider/sidecar team. If, at that time a riders machine is not moving under its own power, the rider/sidecar team concerned is disqualified from the heat and must leave the track with his machine.
- (x) In the case of a false start the Referee may order a re-start.
- (xi) Any competitor disobeying the signal or having been in a false start not obeying the re-start signal, may be excluded from that race.
- (xii) In the case when the starting gate does not operate, the Referee or the Starting Marshall can use the green light or any other approved starting method to indicate to the riders that they shall come up to their starting positions. The starting being controlled by the dropping of the green flag.
- (xiii) A race may be re-started if, in the opinion of the referee:
 - (a) any aspect of the start is unfair or incorrect
 - (b) the actions of any competitor have given any competitor an unfair advantage over another.
 - (i) the referee may or may not exclude rider(s)

R9-3-7 Starting Tapes

- (a) Only a starting gate approved by Speedway New Zealand Steward may be used and definitely not to be a rubber band stretched across the track.
- (b) Approved starting gates must rise vertically and evenly with no sagging in the middle gates. Tapes are to be divided into four equal parts, or up to six equal parts where applicable, known as "gates".
For Sidecars each of the "equal parts" or "gates" to be no less than 2.0 metres (2000mm) in width. i.e. if the track width is 10 metres wide, 5 units can start, if it is less, i.e. 9 metres only 4 units can start, the width of the track will determine how many units you can safely start in one line. The track width shall remain constant (or greater) of the starting line width through until the exit of turn two (i.e., the entrance of the back straight).
The width of the track meaning: from the outside perimeter fence to the inside established pole line.

R9-3-8 Crowding or Foul Riding

The Referee will immediately exclude from that race a competitor who in **their** opinion, whether intentionally or not, indulges in any foul or unfair practise during a race.

R9-3-9 Driving in Wrong Direction

- (a) Under no circumstances shall a competitor, at any time during a meeting or during a practice, be permitted to ride a vehicle in the wrong direction of the track.
- (b) All sidecar races will be run in a clockwise direction and the chair must be fitted to the left hand side of the machine.

R9-3-10 Outside Assistance

A rider/sidecar team must be disqualified from a heat if, after the green light has been switched on (or other starting warning given) or the heat has been properly started, they receive outside assistance except for removing them and/or their machine from the track in the interest of safety.
All contacts by other persons with the rider/sidecar team or their machine, whether intended to give assistance or not, shall be deemed outside assistance.

R9-3-11 Defective Machines

In the event of any defect developing in a machine during a race which may endanger other competitors, the Starter on instructions from the Referee, shall give the competitor the black board and the competitor concerned must immediately retire from the race.

R9-3-12 Overtaking

All races excepting sidecars shall be run left hand inwards and the Referee shall exclude immediately a competitor who in his opinion indulges in foul, unfair or dangerous conduct including any competitor who steers or drifts from his course in such a manner as to impede any competitor who may be attempting to pass or in the case of a non team event, jeopardising the fair chance of one or more of the other competitors.

R9-3-13 Leaving the Course

- (a) A rider/sidecar team whose machine crosses the inner edge of the track with 2 wheels must be disqualified unless, in the opinion of the referee, the action was taken in the interest of safety for other riders/sidecar teams or the rider/sidecar team involved was forced off-course by another rider/sidecar team.

- (b) Competitors riding 'out of bounds' of a smaller inside track (See Section M2-21) with one or more wheels during a race, may re-enter the race when the track is clear and at the rear of the field in the same straight or bend as going off the course.

R9-3-14 Re-run Races

- (a) If an accident has occurred, and in the opinion of the Referee it would be dangerous for the race to continue he shall cause the race to be stopped by giving the "Stop" signal and the race shall then be re-run.
- (b) The Referee or Steward only are empowered to stop a race and no other official shall initiate the 'stop' signal during the course of a race.
- (c) Any race so stopped shall be re-run or restarted. The Referee shall permit any competitor who has fallen or spun up as a result of being fouled or in the interests of safety to take part in the re-run or re-start.
- (d) As a result of a race stoppage, any competitor who is eligible for a re-run but cannot do so due to vehicle damage, may be permitted to change vehicles for that re-run and subsequent events providing the Clerk of the Course is notified and providing the Steward confirms that the vehicle damage sustained was wholly attributable to the incident resulting in the stoppage.
- (e) Any competitor who fails to start in, has retired from or has been excluded during the course of the race which is ordered to be re-run shall be ineligible to take part in the re-run or re-start.
- (f) Any competitor who is not proceeding under power at the time of the incident which results in the display of the "Stop" signal shall be deemed to have retired.
- (g) Any competitor who is primarily the cause of a race being stopped shall be ineligible to take part in the re-run or re-start and shall be excluded and a reserve competitor, if any is not permitted to take the excluded competitor's place in the re-run or re-start.
- (h) If in the interest of safety the Referee has stopped a race after one or more competitors have crossed the finishing line, the race shall not be re-run or re-started. Competitors shall be awarded race placings as their position at the time the red light was applied. The prime cause of the stoppage to be excluded unless the incident requiring the race to be stopped happened after the finish line.
- (i) **First Bend Incident**
Should an incident occur in the first bend or off the start line resulting in a rider or riders be unfairly disadvantaged and the referee unable to determine a clear prime cause through "rider bunching", he may stop the race and order a restart with all starters.

R9-3-15 Dead Heats

In the case of a dead heat, the entrants tying for a place shall divide amongst themselves any prize or prizes attributable to their placing, provided that upon the request of all entrants tying for a place, the Referee and Steward of the meeting may authorise a fresh start and may, with the consent of the said entrants, impose modified conditions for the re-run.

R9-3-16 False Finish

When a race has been stopped by the display of the black and white chequered flag before the required number of laps have been completed by the leading rider, the Referee shall declare the race void and it must be re-run. If however, the Chequered Flag has not been shown after the completion of the requisite number of laps, it shall be considered to have been properly shown.

- (a) A rider/sidecar team must cross the finish-line and receive the chequered flag before any points are allocated in any race.
- (b) A Sidecar must be immediately withdrawn from the race if the rider loses their passenger.

R9-3-17 Required Laps

- (a) All Sidecar races shall be 4 laps, Competitors to race to the flag.

R9-3-18 Changing Gear

Riders may change up to their driving gear only and are not permitted to change down gear.