



Superkart – Regulations

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Definition of a Kart

A kart is a land single seater vehicle without a roof or a cockpit, without suspensions and with or without bodywork elements, with 4 non aligned wheels that are in contact with the ground, the 2 front ones of which control the direction and the other 2 rear ones, connected by a one piece axle, transmit the power.
The main parts are the chassis (including the bodywork, seat), the tyres and the engine.

1. GENERAL

Presentation & Maintenance:

Karts are only allowed to race if they are in a condition which meets the safety standards and if they comply with the Regulations. They must be designed and maintained in such a way as to allow the respect of the Regulations and as not to represent a danger for the Driver and other participants.

Timing Devices:

Timing transmitters or transponders are to be secured to the vehicle to prevent accidental removal and shall be located with the whole transponder and any mounting devices behind the front axle centerline in a straight ahead position.

2. WEIGHT

The weights given are absolute minima and it must be possible to check them at any moment of a competition and read on the display of the scales whatever their measuring precision. Weight is deemed to be the combined weight of kart and driver, the Driver being normally equipped for the race (helmet, gloves and shoes). Any infringement found during a random check during or at the end of an event shall result in the Driver and/or Entrant being excluded from that particular Heat, Qualifying Practice or Race. The owner and driver will be reported to the stewards and further penalty may apply

It is authorised to adjust the weight of the kart with one or several ballasts subject to their being solid blocks. All additional weight must be securely fastened to the chassis or seat. The addition of weight using weight belts, weight attached to race attire or not secured to the vehicle is forbidden.

The minimum weight is a combined weight of kart and driver (fully equipped in race gear) and shall be as follows:

<u>Class</u>		<u>kg</u>
125cc	Non-Gearbox - Light	165
125cc	Non-Gearbox- Heavy	185
125cc	Non-Gearbox Junior (where approved)	150
125cc	Gearbox	180
250cc	Gearbox National	205
250cc	Gearbox International	215
460cc	4 Stroke Developmental Class	215

3. FUEL

3.1 Only fuels available from roadside service stations shall be used, with the Superkart Gearbox Classes restricted to the use of fuel defined as “Commercial Fuel or, Leaded or Unleaded Racing Fuel” and the Superkart Non-Gearbox Classes are restricted to the use of fuel defined as “Commercial Fuel”. The mixing together of pump fuels, or Racing Fuels and pump fuels, is not permitted.

Only commercially available two-stroke oil lubricants may be added to the fuel. They must not increase the octane rating of the fuel they are mixed with. Additives not described as such upon proprietary fixed labeling are specifically prohibited, Performance boosters incorporated in the two-stroke oil are deemed to be illegal under the rules governing commercially available fuel.

3.2 Fuel tanks must be securely fixed to the chassis or the floor tray and be designed in such a way that neither it nor the fuel pipes (which must be flexible) present any danger of leakage during the competition.

Fuel tanks and any related fittings must not protrude or project beneath the floor pan.

Fitment of fuel tanks using a temporary manner or by a means using a temporary system of attachment is strictly prohibited.

The tanks must be fitted with wired or clipped male connectors to accept the fuel line.

Where side fuel tanks are present they must be effectively protected by a bumper.

Fuel may be delivered from the fuel tank to the fuel pump only by gravity and/or by atmospheric pressure.

3.3 Tanks may be constructed of any leak proof material. The minimum thickness of sheets used in steel fuel tanks is 0.7mm thick. Flame-retardant materials are recommended.

Maximum capacity of any fuel tank: 18 litres.

3.4 Taps are optional. If fitted, they must be within easy reach of the driver when seated in the kart.

4. WHEELS AND TYRES

4.1 Tyres shall be

- pneumatic
- tubeless
- Maximum outside diameter = 350mm.
- Retreaded or remoulded tyres are prohibited.

4.2 All wheels shall revolve on ball or roller type bearings, either as separately mounted wheels or on a rotating axle shaft. High tensile bolts or self-locking nuts must be used to secure wheels to the axle.

Forbidden wheel materials: Cast Iron and plastic

4.3 For karts of the 250cc & 460cc class, wheels must be attached to hubs by stud and self-locking nut fixing, or single hub-nut and locking clip.

4.4 Any modification or hand grooving of tyres is prohibited.

4.5 Valve Caps: Metal valve caps must be used on all wheels at all times. They must be of sufficient design to maintain tyre inflation in case of valve mechanism failure.

4.6 Should a race be declared "Wet" by officials; wet weather tyres **must** be used. They may be used at all other times. When used, any brand of wet weather tyre is acceptable.

4.7 Competitors are restricted to one set of four marked dry and one set of four marked wet weather tyres, (two front and two rear) for the duration of the event except as approved by the scrutineers (250cc international class karts are exempt). When tyre marking is appropriate, it shall be carried out by the scrutineers prior to the start of qualifying/racing sessions of the race meeting as determined by the scrutineer. Only those marked tyres may be used for the remainder of the race meeting, except that one front and/or one rear tyre may be replaced at the scrutineers' discretion.

4.8 On 250cc & 460cc karts all road wheels must have at least three bead retaining pegs with bead retention lips, on both the inside and outside of the rims. For the rear wheels, it must be reinforced by at least three pegs on the outer side of the rim and 3 pegs on the inner side of the rim. Rims will be 6". Penalty for non-compliance: exclusion from the meeting.

5. BRAKES

5.1 Brakes must be foot operated and provide efficient braking to at least the two rear wheels. Where there is free play at the ends of the axle keys a hose clamp or other positive mechanical method of key retention is required. All brake pad mounting bolts must be drilled and lock wired to prevent accidental loss of brake pads.

5.2 For all **gearbox karts** dual circuit braking systems are compulsory. Dual circuit brakes on all four wheels are compulsory.

5.3 Brake cables, of multi-strand steel wire, must be of at least 2.25mm diameter. Cables must be fastened by a machine swage or by positive clamps, which do not cut into the cable. Clamps must contact both main strand and return strand in two places at each end. Electrical connectors or similar devices are not permitted.

5.4 Brake actuating rods must be constructed of at least 6mm diameter solid steel. It is recommended that a secondary actuating method be securely fitted which will operate the brake master cylinder/s in the event of the detachment or failure of the primary link component/s fitted between the pedal assembly and the brake master cylinder/s assembly.

5.5 Brake hoses, lines and fittings are to be of suitable pressure line materials designed specifically for hydraulic use. Brake lines shall be connected to components and fittings using male type supporting connections. The use of female type compression olive fittings alone is prohibited.

5.6 Brake caliper and master cylinder mounting bolts must be of high-tensile steel, and must be drilled and lock wired, or be secured by self locking nuts.

5.7 Carbon Fibre disc rotors are prohibited in superkarting.

6. CONTROLS

6.1 Pedals: Whatever the position of the pedals, they must not protrude forward of the chassis, including the bumper.

6.2 Throttle: The throttle must be operated by a pedal equipped with a return spring. The carburettor must incorporate a throttle return spring.

6.3 Hand controls for the operation of the throttle and brakes are subject to the approval of the scrutineer. Such controls will be identified in the vehicle Log Book. Hand controls will only be permitted for use by competitors with individual disabilities requiring the use of hand controls.

6.4 Steering: Steering must be controlled by the operation of a full wheel or aircraft style steering wheel, which has a full metal frame.

- Straight handle-bars are forbidden.
- Detachable steering wheels are permitted provided that they meet all other requirements and are approved by the scrutineers of the meeting.
- Steering stops may be fitted.

- a) The steering must be direct acting through a steel steering shaft of at least 16mm diameter if solid; or 19mm diameter if tubular having a minimum wall thickness of 1.5mm for 125 Gearbox Classes and 2mm for 250cc Gearbox Classes. The shaft shall be tapered, key splined, welded or bolted with a mating collar for steering wheel attachment.
- b) The steering wheel boss must be constructed of metal. Solid material, eg, nylon or hardwood, must be inserted through the steering column where the steering boss bolt passes through, in order to prevent the column collapsing when the bolt is tightened. The steering shaft shall have a fail safe system to prevent it being pulled from the lower bush or bearing. All steering linkage assembly bolts and nuts must be cottered, lock wired, or fitted with self-locking nuts (including king pin bolts).
- c) The tie rods must be of at least 8mm OD steel rod, 10mm OD by 2mm steel tube, or 10mm OD aluminium rod, or 12mm OD by 2.6mm aluminium alloy tube. In all female components of all steering rod ends and steering tie rods, there must be an inspection hole of 1mm diameter drilled 8mm from the open end. When assembled the inspection hole must be covered by thread.
- d) All bolts must be of at least 6mm diameter, of high tensile steel with a shear strength of not less than 6KN. All tie rods must have "Rose" joints or similar aircraft type universal joints. It is advisable that no steering components be chrome plated.

6.5 Clutch and Gear Shift Levers: Gear and clutch, levers or paddles, shall be positioned behind the steering wheel when viewed from the driver's position, so that they are within finger tip reach from the steering wheel. Gear and Clutch control by steering wheel mounted activation buttons of electric, electronic, servo, pneumatic or pressure line systems is permitted. Further, a foot operated clutch pedal situated left of centre mounted brake pedal is permitted.

6.6 Each Gearbox Superkart shall be equipped with a battery isolation (master) switch, which effectively isolates all electrical circuits from the battery and stops the engine. 125NGB shall use the standard Rotax wiring loom with an ignition switch. All classes must have switches that are capable of being operated by the seated driver and from outside the automobile. These switches shall be clearly marked and identified by a symbol showing a red spark in a white-edged blue triangle. This symbol must be attached on the outer surface of the body work adjacent to the switch.

Control switches for electrically powered devices and accessories must be located forward of the drivers elbow in the normal seated driving position, and be accessible to trackside officials with the driver seated. The allowable mounting areas are confined to; an area beside the forward part of the seat; the Nassau panel/bubble area; or on the steering wheel. Switches may be toggle, slide or push-pull type, and shall be individually identified as to on/off position and function. Grouped switches shall be arranged so that all are 'off' and 'on' in the same direction or position.

7. CHASSIS

7.1 Identification: All Superkart chassis must be marked with a unique identification number/code in a visible position on a non-removable main rail or member. This number/code will be by permanent incident or impression of numerical and/or alpha characters and shall be recorded in the vehicle's log book.

7.2 Dimensions: The wheelbase must be at least 1000mm and not more than 1270mm. The track must be at least two-thirds of the wheelbase. The overall length must not exceed 2400mm.

7.3 Construction: The frame must be of all magnetic metal construction.

7.4 Bumpers: All karts must be fitted with bumpers front and rear. No component of the kart (other than the front fairing) may extend or protrude past either the front or rear bumpers. Components may be mounted on or attached to the bumpers.

- a) The fitment of side bumpers ("nerf bars") is compulsory where side pods are not fitted. They must:
 - be not higher than the rear axle;
 - be of at least 15mm diameter and adequate wall strength;
 - cover at least two-thirds of the tread width of the rear tyre.
- b) A bumper is not required on the engine side of 250cc karts.
- c) Rear bumpers shall be composed of at least one bar with a minimum diameter of 18mm and a minimum wall thickness of 1.5mm in the area between the chassis main rails; the lowest bar shall be located at a height to ground not exceeding 150mm ± 20mm. The rear bumper unit must be fixed in at least two points to the chassis frame.
- d) Rear wheel protection is an additional fitment to the rear bumper, and must be incorporated either as an additional unit attached to a central rear bumper, or integrated into a one-piece full width rear bumper. Minimum

width shall be 1,080mm. The rear bumper maximum width shall not exceed the dimension between the outer flanges of the rear wheels regardless of the rear track setting.

- e) Rear bumper overhang shall not exceed 400mm behind the rear axle centreline. The outer ends must be located behind the rear wheels, and:
- any support struts or bars will not have sharp or angular parts at the extremities;
 - the outer ends shall comprise a minimum 120° tubular bending with a minimum radius of 50mm that returns back to the mounting leaving no exposed tube end/s;
 - may be fitted in an angled, horizontal or vertical plane;
 - the rear wheel protection bar/s shall be located within an area between 80mm and 260mm height to ground.

For the Non-Gearbox classes, CIK-approved Long Circuit rear bumpers or CIK-approved Rear Wheel Protection are also allowed.

7.5 Suspension: All suspension devices, either elastic or hinged, are prohibited. Hydraulic, pneumatic or mechanical suspension devices are forbidden on all the kart.

8. BODY WORK The bodywork must be well finished, in no way of a make-shift nature and without any sharp angles.

8.1 Height: The maximum height of any part of the kart shall not exceed 710mm from the ground except for a structure solely designed as a head restraint with no possible positive aerodynamic effect; save that wings, including any end plates, may be not more than 1000mm above ground level.

8.2 Floor: There must be a floor, made from rigid material, which extends from the seat to the front of the kart. It must be edged on each side by a tube or rim to prevent the driver's feet sliding off the floor. It must not exceed the width of the bodywork including wings and end plates. If perforated, the holes must be of less than 10mm diameter.

8.3 Bodywork: The bodywork is made up of all parts of the kart that are in contact with air, and shall include fairings, bubble, side pods, floor tray and aerodynamic aids or wings. Bodywork does not include the air box, fuel tank, seat and number plates, and mechanical parts defined elsewhere. The bodywork must be structurally sound and finished without any sharp edges that could cause injury to a competitor. Air vents, ducts or passages formed in bodywork or as separate elements to aid cooling or supply airflow to components shall be arranged so as not to include recessed surfaces in bodywork openings and soft and/or rolled radius to leading edges on scoops. There shall be no external protrusions beyond the vertical surface line of the side bodywork faces.

8.4 Fairings: The fairings are free forward of the steering wheel save for classes with specific bodywork restrictions and must not cover the driver rearward of the steering wheel when seated in the kart.

Fairings must not extend in width more than 50mm beyond the quadrilateral formed by the outer edges of the front and rear tyres. They must be completely hollow except for strengthening panels.

Fairings must be of safe and sound construction and must be securely fastened to the frame. They must be firmly fixed in position and not be adjustable by any means whilst the kart is in motion. The material is restricted to:

- Glass reinforced epoxy or polyester resin;
- Composite construction including Kevlar and carbon fibre substrate;
- Aluminium at least 1mm thick;
- Vacuum-formed ABS at least 2mm thick or comparable non-shatterable material.

Fairings must be easily removable for scrutineering.

8.5 Bubble: Perspex, plexiglass or fibreglass bubbles, of at least 1.2mm thickness may be fitted, but may not extend more than 75mm above the top of the steering wheel.

8.6 Aerofoils/wings may be fitted except for classes with specific bodywork restrictions and must be mounted on the frame of the kart with supports of at least 13mm x 2mm tubing, or equivalent.

They must be firmly fixed in position.

Adjustment of aerofoils/wings whilst the kart is in motion is prohibited. They must not be used as containers. The leading edge of any aerofoil must have a minimum radius of 5mm.

Recommended materials for construction of aerofoils:

- Glass reinforced epoxy or polyester resin;
- Composite construction including Kevlar and carbon fibre substrate;
- Aluminium at least 1mm thick.

Steel is prohibited.

250cc classes are required to run a rear Aerofoil/Wing at all events.

9. SEAT

- The seat must be designed in a manner so that the driver is well located within the seat so as to resist movement towards the side or front when cornering or braking. The seat must be mounted to the frame at a minimum of four points of adequate strength.
- 250cc Class karts must have a headrest. The headrest must form part of the seat and be "as one". A headrest must not be detachable or adjustable in any manner. The headrest must be designed so as to limit the rearward movement of the driver's head in the event of a collision. The position of the headrest shall be such that the helmet must contact the headrest at a point no lower than half way up the back of the helmet with the driver in the correct seated position. Fitment of a helmet pad to the headrest is permitted.
- On 250cc Class karts, the seat must incorporate a head restraint and is recommended for other classes. In other classes, use of a neck brace is encouraged.
- The position of the seat must be so that the driver is able to see over the top of the steering wheel at all times when seated in his normal position in the kart. The driver's legs must occupy the front half of the kart.
- Seat mounting points must be reinforced by the use of metal spacers between the mounting and the seat. The spacers must be at least 1.5mm thick and 80mm diameter and be installed between the seat mounting and the seat.

10. NUMBERS

Numbers: Number plates must be rectangular, at least 230mm high x 270mm wide. The relevant colours shall be:

<u>Class</u>		<u>Plate</u>	<u>Number</u>
250cc	Gearbox National	White	Black
250cc	Gearbox International	Yellow	Black
125cc	Gearbox	Red	White
125cc	Non-Gearbox – light	White	Red
125cc	Non-Gearbox – heavy	Blue	Yellow
125cc	Non-Gearbox Junior	High-visibility Orange (Fluro Orange) (where approved)	Black
460cc	Developmental Class	White	Black

The numbers must be at least 200mm high and of 30mm stroke width. Numbers must be fitted to both front and rear of each kart. It is allowed to print the racing number on the rear radiator. The front number must be attached to the bubble or Nassau Panel. A third number plate must be mounted on the side of the kart facing the timekeepers/lap scorers.

The side number positioning restrictions:

- No more than 500mm in front of the centreline of the rear axle;
- The lower edge of the numbers must sit above a horizontal line drawn through the top edge of the rear tyre;
- The plate itself must be vertical and parallel to the centreline of the kart.

Advertising is permissible on the number plate but must have the approval of the organizers and must not be positioned within the lower part of the number plate. Advertising must not exceed 50mm in height.

The race numbers 1, 2 & 3 are reserved for CAMS national champions for the period during which they are National Champions or placegetters. Drivers awarded the numbers 1,2,& 3 by CAMS may use these numbers in AASA events. The colours must comply with the regulations for that class.

Karts driven by beginner superkart drivers must carry a standard "P" plate on the rear of the kart, 150mm square for the first 3 race meetings (minimum). The P plate may still be displayed if determined appropriate either by driver or race/category organisers.

New competitors may present a kart with numbers complying with AKA regulations for their first two meetings. The irregularity will be noted in the kart's log book as a non-compliance. It is the responsibility of the driver to conform to number regulations by their third race meeting.

11. RAIN LIGHT

Rain lights are mandatory for Superkarts. They shall be a unit approved by the FIA or CIK or shall be a Hella Dura Led Part No. 2307. Rain lights must be powered by a sealed/dry battery and controlled from the cockpit by a waterproof switch. The light must be placed on the rear of the kart in an area located 400-600mm from the ground and 100mm maximum from either side of the central axis of the kart. It must be in working condition throughout the meeting and will form a part of the scrutineering process. It must be switched on prior to entering the dummy grid when the race is declared "wet" by the Clerk of Course.

12. MIRRORS

Mirrors are an optional fitment but HIGHLY recommended.

13: ENGINE & CLASSES

13.1 The following classes and engine restrictions shall be observed for all Superkart events:

125cc non gearbox	Rotax light (2 stroke)
125cc non gearbox	Rotax Heavy (2 stroke)
125cc non gearbox Junior (Where approved)	Rotax Heavy (2 stroke)
125cc	125 Gearbox (2 stroke)
250cc	250 National (Single Cylinder) (2 stroke)
250cc	250 International (Twin Cylinder) (2 stroke)
460cc	4 Stroke (Single Cylinder)

13.2 A 5% tolerance on swept volume, calculated on the designated class capacity, shall apply to engines with cast iron bore cylinders. Engines manufactured with plated cylinders, eg, Nikasil, chrome etc, shall have a bore diameter not exceeding the original standard specifications for that make/brand, type and model engine.

Re-building and re-plating of damaged plated cylinders is permitted, provided that the original specifications are adhered to. Plated bore cylinders are not permitted to be re-sleeved to take advantage of this tolerance.

13.3 Supercharging or Turbo charging of engines is forbidden.

13.4 Catch tanks must be fitted to karts where a sealed cooling system is not present. Catch tanks must be:

At least 250ml for karts up to 125cc

500ml for karts over 125cc

Glycol-based coolants are prohibited.

Radiators must be placed behind the pedals and forward of the rear bumper.

Lock wiring or pinning of radiator caps is mandatory to prevent accidental removal during racing. This will form part of the scrutineering process.

13.5 The exhaust system must be fitted so that it discharges towards the rear and away from the driver. The exhaust outlet shall not exceed 500mm in height. The exit must be free from sharp edges. The outlet of the muffler must be within the perimeter of the kart when viewed from above. The complete exhaust system must be securely fastened to the kart so as to ensure that it cannot fall should a mounting fail. Mounting springs must be wired to prevent accidental removal during racing.

13.6 In order to reduce noise all karts must be fitted with mufflers. The maximum emitted sound is 95dB(A), measured 30m from the track edge.

13.7 The driver when normally seated must be protected from all contact with the exhaust system.

14. TRANSMISSION

14.1 Front wheel drive systems are forbidden.

14.2 Clutches are compulsory.

14.3 All gearbox drain plugs must be lock wired and all other drain, indent plunger caps and filler caps must be wired.

14.4 Engine sprocket and chain guards are compulsory. They must effectively cover the engine sprocket and the axle sprocket down to the centre line of the axle sprocket.

All chain guards must be securely attached to the kart at both ends.

14.5 All automatic methods of chain oiling and greasing are prohibited.

14.6 Gearboxes must be fitted with a breather pipe. The pipe must discharge into an overflow bottle of at least 250ml capacity. Any discharge must be contained within the overflow bottle and not fall on to the track.

14.7 A guard must be fitted anywhere there is the possibility of the driver or their attire or other persons coming into contact with any moving component that is part of the engine.

15. SPECIFIC CLASS RESTRICTIONS AND REGULATIONS

15.1 Gear Box - 125cc, and 250cc:

These classes shall be open to karts fitted with two or four stroke engines. Permitted engines are subject to one of the following:

- a) being normally fitted to production motorcycles;
- b) homologated for use in karting by the FIA or CIK;

Modifications are allowed, subject to the general specifications complying with the Superkart Formula.

15.2 125cc Gearbox Class (up to 125cc): In addition to Regulation 15.1 above:

- a) not more than two cylinders per kart.
- b) not more than seven forward gears.
- c) Must be of two stroke cycle only.

Brakes must be fitted to both front wheels and to the rear wheels. Karts must be equipped with a double circuit braking system so arranged that the pedal normally operates on the four wheels and in the event of the leakage at any point in the braking system, the pedal shall still control two wheels on the same axle.

15.3 250cc Gearbox Classes (up to 250cc): In addition to Regulation 15.1 above:

International:

- two cylinders maximum per machine
- two single-cylinder 125cc Gearbox engines are permitted
- Rotax 256 engines may be fitted with approved replacement 'SAFE' engine cases and parts.
- Must be two stroke cycle only

National:

- Single-cylinder per machine.
- Two stroke cycle or four stroke cycle permitted.
- Four stroke cycle engines are limited to 460cc are permitted. No engine modifications are permitted with the exception of the exhaust. All ancillaries including electrical, ignition and fuel intake systems are to be OEM as original fitment to the engine make and model. Fuel injection is permitted.
 - a) brakes must be fitted to both front wheels, and to the rear wheels. Karts shall be equipped with a double circuit braking system so arranged that the pedal normally operates on the four road wheels and in the event of leakage at any point in the braking system, the pedal shall still control two wheels on the same axle.
 - b) all road wheels must have at least three bead retaining pegs, or bead retention lips, on both the inside and outside rims. Rear wheels must have a total of six retaining pegs, ie, three inside and three outside per wheel. Penalty for non-compliance: exclusion from the meeting.
 - c) 250cc Tyres may be selected from the tyres approved by the FIA/CIK for Superkart Division 1. Subject to Speed and load rating these include tyres bearing the "CIK" or "CIK/SK ICE" marking.

15.4 125cc Non-Gearbox Class

Chassis, running gear and coachwork:

- a) **Brakes:** Must consist of a single disc and caliper acting on the rear axle. Front wheel brakes are prohibited.
- b) **Tyres & Wheels:** All wheel rims must be 5" diameter. Tyres must be selected from:
Dry: Dunlop SL6, Maxxis HG3 , MG AZ Red, MOJO D2
Wet: Free (must be fitted to 5" rims.)
- c) **Chassis:** Circular section tubing only or maximum of one main rail not round. Maximum diameter for chassis tubing is 35.5mm (inclusive of paint). The only stub axle mounting system permissible is as per diagram iii(below). Maximum wheelbase 106cm. Maximum rear axle diameter: 50.0mm.

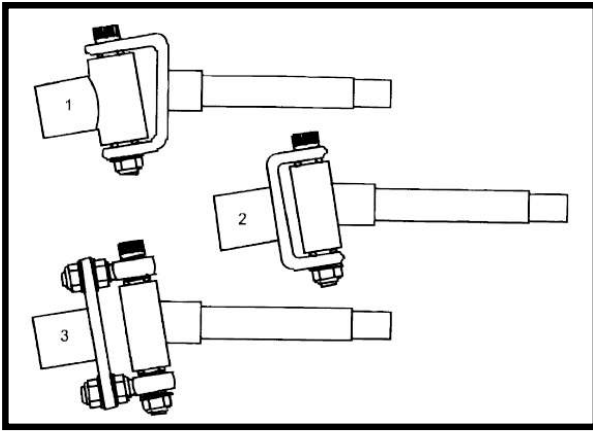


Diagram iii Stub Axle mounting system

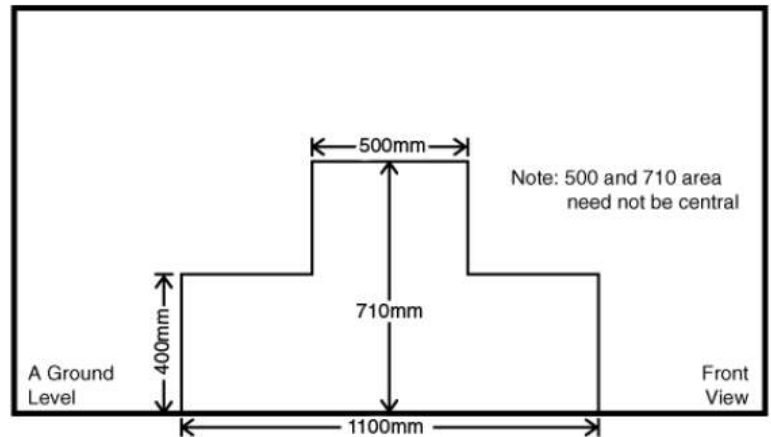


Diagram iv Body work template.

- d) **Bodywork:** Bodywork is permitted on 125cc Non-Gearbox Classes. Body work must comply to the following conditions:
- Allowable components are nose cones, bubbles and side pods, mirrors and number plate /mounting components
 - all bodywork, excluding mirrors, forward of a vertical plane, drawn through the centre line of the front wheels in their straight-ahead position and at right angles to the centreline of the kart, must fall within the area of the template described in diagram iv (above).
 - No bodywork rearward of this vertical plane shall extend further than 300mm rearward of that plane; be more than 710mm above the ground, be closer than 300mm to the ground, nor wider than 500mm.
 - A minimum front fairing / bubble / Nassau panel height is set at 565 measured from the ground to any and all points up to 125mm either side of the centre line of the fairing at the rear of the fairing/bubble/Nassau. This is to restrict the development of the lay down style chassis.
 - The finished material of the front fairing / bubble / Nassau panel must not be transparent.

Side pods are compulsory and must comply with the following compulsory Technical Specifications (refer diagram iv-a, below).

- They must under no circumstances be located either above the plane through the top of the front and rear tyres or beyond the plane through the external part of the front and rear wheels (with the front wheels in the straight ahead position). In the case of a "Wet Race", the side pods may be located outside the plane passing through the outer edge of the rear wheels.
- They may not be located inside the vertical plane through the two external edges of the wheels (with the front wheels in the straight ahead position) by more than 40mm.
- Minimum ground clearance 25mm
- Maximum ground clearance 60mm
- The surface of the side pod must be uniform and smooth with no sharp edges. Holes may be drilled or cut only for the purposes of attachment.
- Gap between the front of the side pod and the front wheel: 150mm maximum.
- Gap between the back of the side pod and the rear wheel: 60mm maximum.
- Side pods are forbidden to cover any part of the driver when seated in the kart.
- The side pods must not overlap the chassis-frame seen from the underneath.
- On the outer side they must comprise a vertical surface (with a tolerance of $\pm 5^\circ$ in relation to the theoretical vertical plane) with a minimum height of 100mm and a minimum length of 400mm located immediately above the ground clearance.
- They must not be able to hold back water, gravel or any other substance.
- They must be solidly attached to the side bumpers.
- Materials: side pods are permissible to be constructed from non-splinterable plastic, or fibreglass. Manufacture using composite materials, carbon fibre and Kevlar is prohibited.

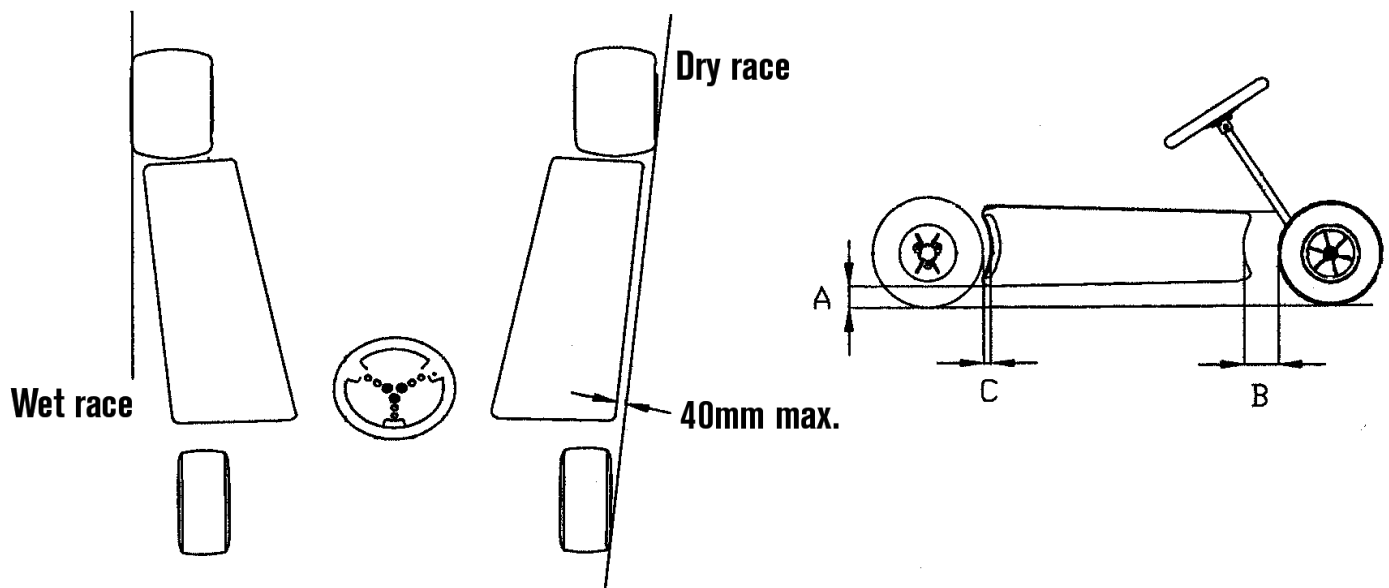


Diagram iv-a

A – 25mm minimum to 60mm maximum

B – 150mm maximum

C – 60 mm maximum

Diagrams are for dimensional reference only

- each kart must be fitted with a flat floor tray, made of rigid material which extends from the front of the seat to the front of the kart only, which covers the whole width of the kart between the outer edges of the main longitudinal frame rails and which is no wider at any point than the longitudinal frame rails;
 - each kart shall be fitted with a minimum of three number plates, each not exceeding 300mm x 300mm
 - rear plates are necessary to carry the number plate and must be no larger in width or height than necessary to carry the required numbers.
- e) Composite materials: Composite materials are not permitted except for the construction of seats, fairings, bubbles, chain guards, number plates, rear side plates, mirror housings and the floor tray.
 - f) Steering: Must comply with Superkarts Regulations, Article 6.4.
 - g) Drive sprockets: Free.
 - h) Battery: The battery leads must be removable without the use of tools. The battery must be securely attached directly or indirectly to the chassis using self-locking nuts and bolts/threaded metal rods.
 - i) Rain light: Must comply with Superkarts Regulations Article 11.

Engine: The only engine permitted is the BRP Rotax FR125 Max.

- a) Unless expressly permitted under these regulations, all engine and driveline parts must be of Original Equipment Manufacture (OEM) by BRP Rotax GmbH.
- b) Non-technical items are battery, fuel filter, radiator hoses, clamps, pulse line, switches, ancillary mounts, fasteners, circlips, washers, bearings, spark plug, gaskets, O-rings, piston pin, springs, seals, clutch drum, engine sprocket, rings, starter motor and clutch flywheel. No alteration from the original manufacturer's specification is permitted to fit a non-technical item.
- c) Cylinder head capacity: Shall be a minimum of 11.0cc using the method detailed in the Superkarts - Technical Regulations, zzz.method of measuring cylinder head volume.
- d) Displacement: 125.0cc maximum.
- e) Combustion chamber insert: Only Rotax part number **223 389 389** or **223 389 1** or **223 389 2** may be used. The name Rotax or 'made in Austria' must be cast into the combustion chamber insert. No additional material may be added except to repair the spark plug thread and or spark plug sealing surface. All machined surfaces may be re-machined. The insert must retain both squish band and spherical combustion chamber. An 'O-ring' must be fitted.
- f) **Spark plug thread length:** maximum thread length is 20mm.
- g) **Piston:** Only pistons which are OEM and comply with the following regulations may be used.
 - Coated or uncoated, aluminium, cast piston with one and only one 1.0mm rectangular piston ring. The piston has to show on the inside the words "ELKO and "Made in Austria" in the casting.

- Machined areas are: top crown of piston, outside diameter, one groove for the piston ring, bore for gudgeon pin, inside diameter at bottom end of piston. No other surfaces are machined.

h) **Gudgeon pin:** Gudgeon pins which comply with the following measurements may be used and must be made of magnetic steel:

Length	45.6mm max \pm 0.45mm
External Diameter	15.0mm -0.003mm
Internal Diameter	10.0mm max +0.1 -0.2mm

i) **Cylinder:** Only cylinders supplied by Rotax and complying with the following regulations may be used. Light alloy cylinder with Gilnasil plating. Replating is permitted.

Maximum bore	54.035mm (measured 10mm above exhaust port)
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Cylinder must be marked with Rotax logo. Cylinder base must be marked with manufacturer's identification code: **223 997** or **223 996** or **223 993**. Machining of this cylinder is not permitted. No additional machining of ports or passages. Cylinder must have official Formula Rotax Australia stamp on the inlet face. Junior class to use only cylinder without exhaust power valve. Cylinder has to be marked with ROTAX logo and identification code: **223 999** or **223 998** or **223 994**.

Length of cylinder	87mm with +0.1 / -0.05mm tolerance
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- j) Cylinder base gasket/s: Must be dimensionally the same size and shape as original equipment and shall not have the effect of decreasing the size of the transfer ports.
- k) Inlet system: Grinding or machining to any part or component of the inlet system including the manifold and reed valve assembly is not permitted. No material may be added.

The manifold must carry the manufacturers name ROTAX and identification code: **267 915**.

The reed valve assembly must carry the manufacturer's name ROTAX and identification code: **224 387** or **224 389**.

The reed valve assembly must be equipped with two petal stops and two reeds, each having three petals.

Thickness of reeds	0.6mm +/- 0.08mm
Reed block gasket/spacer thickness	4.0mm max.

The addition of one Rotax reed block gasket, maximum of 1.0mm thick, between the carburettor manifold and the reed block is permitted.

- l) **Exhaust powervalve:** No modifications are permitted to the exhaust powervalve. The original spring must be fitted. No external adjustment or blocking to this device is permitted while the engine is running or during a race. Maximum thickness of powervalve gasket/s is 2.0mm. Additional fasteners or securing devices may be fitted/added. The length of the exhaust valve is 36.5mm +0.2/-0.3mm. Collar width is 4.8mm +/- 0.3mm. Exhaust Valve Evolution is approved part ID253 725.
- m) **Crankshaft:** No modifications are permitted to the crankshaft

Stroke	54.5mm +/- 0.02mm.
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- n) **Balance shaft:** No modifications are permitted to the balance shaft, which must be installed and operational. The balance shaft shall be either part number/type **237 945**, **237 948** or **237 949**. The minimum weight of the dry balance shaft is 355 grams for part number/type 237 945 and 255 grams for part number/type 237 948 and 237 949. Both the plastic balance gears, part number **234 431**, or the steel balance gears, part number **234 436**, are permitted. Balance gears must be installed and correctly aligned according to the instructions in the repair manual.
- o) Connecting rod: No grinding /polishing or modifications are permitted.
- p) Connecting rod must bear the manufacturer's stamp of "213" or "365" or "367" on the shaft.
- q) Crankcase: The two main transfer passages of the crankcase must remain untouched as supplied.
- r) The official Formula Rotax Australia stamp must be on the crankcase deck.
- s) **Ignition unit:** The ignition unit must be DENSO digital ignition only, with no adjustment permitted or possible. Ignition coils must have the following marks close to the outlet of the HT cable:
Cast in case = DENSO 129000
Spark Plug Cap = NGK type (TBO5EMA)
No modification to any part of the ignition system and/or crankshaft to alter the ignition timing or rev limiter is permitted.

The ignition coil must have three pins at the terminal.

Battery make is free.

- t) **Carburettor:** The carburettor body, slide, needle, atomiser tube and atomiser insert (either specification 1 or specification 2 is permissible for seniors, but only specification 2 for Junior Max) and float arm must remain as originally supplied and may not be modified. No additions or machining, filing, drilling or polishing to these items, including the carburettor bore/throat, is permitted. No changes or adjustments can be made to the main jet or air bleed screw whilst the engine is running.
"VHSB34" must be cast in the housing of the carburettor.
"QD" or "QS" must be stamped in the housing of the carburettor.
Atomiser tube must be stamped with "266 FN".
Needle must be stamped with "K 54", "K 27" or "K 98" (note: others may be nominated in the future).
Slide must be marked "#40" only.
The size of any hole in any of the following is unregulated: main jet, needle and seat, pilot jet, pilot jet emulsion insert, choke jet. The position of the float/float arms and the weight of the floats are unregulated. All items (jets, needles etc) referred to in Rule (s) must be present and operational.
All other settings in the carburettor are free.
- u) **Fuel pump:** Only one Mikuni DF44-211-D pulse fuel pump may be used. Fuel must be supplied directly from the pump to the carburettor by an uninterrupted fuel hose connection. The maximum length of the fuel line from the tank to the fuel pump is 1000mm, and from the fuel pump to the carburettor is 500mm.
- v) **Radiator:** One (1) only, genuine Rotax aluminium radiator is permitted.

<u>Cooling area</u>	Height:	290mm
	Width:	133mm
	Thickness:	32mm

Twelve (12) only water cores are permitted.

Placement of radiator is free. Only thermostats supplied for Rotax Max FR125 as OEM by BRP Rotax GmbH may be used.

- w) **Clutch:** The clutch must be of dry centrifugal type using genuine Rotax components unless nominated as a non-tech item; both genuine Rotax clutches are permitted. Whilst on level ground the kart (with driver) must start to move under its own power, when the engine speed reaches 3000rpm or less. The use of the Rotax clutch pin support plate is permitted. Clutch springs are not classed as non-tech items and must be genuine Rotax components. Lubrication of the clutch is prohibited.
- x) **Intake silencer:** The intake silencer as supplied by Rotax for the FR125 Max must be fitted, with no modifications permitted.
The air filter must be in place, and be either fine or coarse type 030 filter. The silencer must be fitted with the inlet trumpets at the base of the unit.
It is permissible to drill a single drain hole up to 8mm in diameter in the lower part of the intake silencer (in the centre of the plastic injection mark). Either type of airbox may be used, comprising casing parts 225 025 and 225 015, or casing parts 225 010 and 225 020.
- y) **Exhaust system:** The exhaust system must be as supplied by Rotax for the FR125 Max and may not be modified except for
(a) silencer absorption material may be replaced with genuine part as supplied by Rotax,
(b) addition of a single-sensor probe fitting.
Welding for the purposes of repair of cracks, holes or fitting of patches only is permitted. No welding which has the effect of altering the shape of the exhaust system is permitted. Endcap rivets must be replaced with bolts, capscrews etc, suitable for the purpose.
Junior class to use only Type B exhaust as supplied by ROTAX.
- z) **Engine measuring procedure for Rotax FR125 Max using official gauges:** The gauges have been designed to make engine measuring quick and easy. If an engine fails when measured with these gauges, the competitor may request that the engine be re-measured using normal precision measuring tools.

zz.Port timing check with Piston Travel Gauges

Step 1 – Set Gauge

Screw the body unit of the piston travel gauge into the spark plug hole and insert the rod for the type of engine being checked. Turn the engine in its direction of rotation till the conrod reaches its highest point of the engine stroke TDC, adjust the head of the body to line up with the bottom mark of the rod.

Step 2 – Check Stroke

Slowly turn the engine in its direction of rotation till the rod is at its lowest point BDC and the top mark of the rod should line up with the head. The stroke is: 54.52mm (max) for Rotax FR125 Max.

Step 3 – Check Exhaust Duration

Place the 5mm pin in the top of the exhaust port and slowly turn the engine in its direction of rotation until the top of the piston touches the 5mm pin which is then “rolled” between the top of the piston and the exhaust port to find the highest point of the exhaust port. Using very light pressure to hold the pin in place the fourth mark of the gauge should not be showing or is in line with the head of the gauge body. If the line is above the head of the gauge body the barrel has exceeded the maximum exhaust port height allowed. Exhaust duration measured from TDC is: 33.8mm (max) for Rotax FR125 Max.

zzz.Method of measuring cylinder head volume:

Step 1 – Remove spark plug and insert measuring plug

Step 2 – Place piston at approximately TDC.

Step 3 – The measuring plug to be withdrawn two turns.

Step 4 – Insert the specified volume of liquid (50% distillate and 50% auto transmission fluid, approximately), using “B” Grade burette calibrated to 1/10 of a cc. under gravity feed. Make sure that the fluid is visible in the measuring plug.

Step 5 – Tighten the measuring plug down until it stops.

Step 6 – Slowly wind motor over and check for fluid level in the measuring plug. No fluid should be expelled through the top of the measuring plug. (Note: Motor to be measured should be allowed to cool to ambient temperature.)

Step 7 – Should the first test fail, the competitor may request a second test. This second test is to repeat Steps 1 to 6 above (after Step 8).

Step 8 – To clean out the measuring fluid after the failure of the first test and then before the commencement of the second test, unleaded petrol is to be poured into cylinder, motor is to be rinsed and blown out by inserting an air hose into the spark plug recess and turning the piston to open the exhaust, thus expelling excess fluid. The cylinder head is not to be removed.

