



2023 REGULATIONS FOR THE NORTHERN REGIONS FKR 125 SHIFTER KARTING CHAMPIONSHIP

NB: WHAT IS NOT WRITTEN IS NOT PERMISSIBLE

PROMOTER – FKR a division of Formula-K SA (Pty) Ltd

1. EVENT

All race meetings held under this championship shall be held under World of Motorsport ZA (WOMZA) General Racing Regulations (GRR's) for 2023 as well as the 2023 Karting South Africa WOMZA Standard Karting Regulations (KSA, WOMZA SKR's) and any Supplementary Regulations issued by the club for each race day as well as any instructions issued from time to time in KSA WOMZA circulars or bulletins.

2. AIM OF THE CHAMPIONSHIP

The Aim of the Championship is to declare a FKR Champion in each of the nominated classes, whilst promoting a culture of good sportsmanship, fair play and recognition of all drivers without boundary of race, religion or culture, in a professional and fun environment. The 2023 FKR Championship is open to all drivers from all clubs who possess an WOMZA Karting licence and adhere to the regulations set out in the 2023 Karting South Africa WOMZA Standard Karting Regulations.

3. FKR SHIFTER CLASSES

- FKR KZ2 (Open to competitors from the year of their 15th birthday)
 - FKR 125GP (Open to competitors from the year of their 16th birthday)
 - FKR 125GP Masters (Open to competitors from the year of their 45th birthday) -
 - Clubmans
 - FKR Manufacturers Champion
- Special dispensation must include a motivation letter for consideration

5. RACE FORMAT

- Practice (Qualifying)
- Qualifying will consist of 10min, either Friday or Saturday as per the event programme

RACE

- Heat 1 will start as per the fastest lap in Qualifying
- Heat 2 will start as per the results of Heat 1
- Heat 3 will start as per the results of Heat 2

LAPS

- Heat 1–12 • Heat 2–10 • Heat 3–8
- Except stated otherwise in the event SSR's

STARTER

- A competitor is deemed to be a starter when they have passed the white line at the pit exit (pre race grid) to the circuit.

6. SCORING

a. POINTS

1st	35	11th	22	21st	12	31st	2
2nd	32	12th	21	22nd	11	32nd	1
3rd	30	13th	20	23rd	10	33rd	0
4th	29	14th	19	24th	9		
5th	28	15th	18	25th	8		
6th	27	16th	17	26th	7		
7th	26	17th	16	27th	6		
8th	25	18th	15	28th	5		
9th	24	19th	14	29th	4		
10th	23	20th	13	30th	3		

- Non- finisher 5 points less than lowest placed finisher. A finisher will be deemed to have completed more than 67% of race distance.

- Manufacturers championship points will be allocated per event to the top two point scoring chassis of each brand.

- a. Bonus points will be awarded as follows:
 - Pole Position for qualifying - 1 point
 - Fastest lap of the day (this does not include qualifying) - 1 point

- b. All nominated rounds with three heats on the day will count, with competitors' worst 3 heats of the championship to be dropped.
- c. A DQ or any Technical Exclusion cannot be dropped and must be scored as a zero.
- d. Separation of ties: Please refer to the SKR's

7. EQUIPMENT

a. KARTS

SHIFTERS

All classes will use equipment as per the KSA WOMZA Standard Karting Regulations. As the clubmans class is a development class, all competitors must use a chassis older than one year or locally manufactured chassis. No new chassis will be allowed.

The junior class will use the Birel Shifter kart designed for the 80cc Seven engine.

b. ENGINES

FKR KZ2 - Any engine as per the TM & Vortex Registration Weight – 185kg

FKR 125GP - Any engine as per the TM & Vortex Registration Weight – 195kg

FKR 125GP Masters - Any engine as per the TM & Vortex Registration Weight – 195kg

FKR clubmans – KZ10/KZ10c, at 195 kg as per TM Homologation Sheet.

- lame X30/ K9 / K9B/ K9C, at 185kg.

- Only TM R1 Engines supplied or registered by the official TM SA importer will be accepted All other engines must be registered with the organiser by the end of February 2023 or by arrangement by the promoter.

CIK - FIA KZ ENGINE

- Water cooled single-cylinder engine with reed-valve intake homologated by the CIK-FIA.
- Maximum cylinder cubic capacity: 125cc.
- Reed-valve box cover: free.
- Float chamber carburetor: Dell'Orto VSH 30.
- The only settings allowed may be made to: the slide, the needle, the floaters, the float chamber, the needle shaft (spray), the jets and the needle kit, subject to all the interchanged parts being of Dell'Orto origin. The incorporated petrol filter and the plate may be removed; if they are kept, they must be original.
- Polishing of the carb throat is allowed as long as original dimensions remain.
- Gearbox: must remain as supplied form TM and homologated CIK-FIA (including the primary torque). With a minimum of 3 ratios and maximum of 6 ratios allowed. Check of the ratios using a graduated disc with a minimum diameter of 200 mm of digital coder; the degree decimals given on the homologation forms must be mentioned in tenths of degrees and not in minutes. For the homologation of the gearbox, the manufacturer(s) and the model and type must appear on the homologation form.
- In KZ2: hand-operated and exclusively mechanical gearbox control without a servo system. Any system of ignition cutting is forbidden.
- Total exhaust opening angle of 196 +/-1 degrees maximum, irrespective of the value indicated on the homologation form (to be read with a graduated circle of a minimum diameter of 200 mm or with a digital device).
- Spark plug free make (mass-produced and strictly original). The body of the spark plug (electrodes not included), tightened on the cylinder head and must not extend beyond the upper part of the dome of the combustion chamber.
- Dimensions of the threaded spark-plug housing- length: 18.5 mm; pitch: M
- Identification of the motor will be according to engine number.
- Exhaust: homologated and the magnetic steel sheet metal thickness of which must be 0.75 mm minimum.
- TM stamped exhaust with correct engine model will be allowed as per TM homologation.
- Exhaust silencer: homologated, mandatory use. Fitting of the exhaust and silencer according to the Technical Drawing No. 20.

ENGINES PERMITTED

a. Shifter Classes:

- TM KZ10 Homologation Form No. 49/M/18 VERSION 1.3 – 13/12/2012
- TM KZ10C Homologation Form No. 32/M/24 VERSION 1.2 – 22/09/2016
- TM KZ-R1 Homologation Form No. 041-EZ-75 VERSION – 09/2020
- https://www.tmracing.it/wp-login.php?redirect_to=%2Fen%2Fmanuals-and-technical-specifications%2F

- TM KZ-R2 Homologation Form No. 041-EZ-02 2022
- <https://www.tmracing.it/en/download/homologation-041-ez-02-tm-kz-r2-2022/?wpdmdl=29926&refresh=63dcd0fe0aff1675415806>
- VORTEX RSZ Homologation Form No. 012-EZ-76 VERSION 1 - 15/02/2019

b. KZ2 Shifter Class:

- TM KZ10 Homologation Form No. 49/M/18 VERSION 1.3 – 13/12/2012
 - TM KZ10C Homologation Form No. 32/M/24 VERSION 1.2 – 22/09/2016
 - TM KZ-R1 Homologation Form No. 041-EZ-75 VERSION – 09/2020
https://www.tmracing.it/wp-login.php?redirect_to=%2Fen%2Fmanuals-and-technical-specifications%2F
 - TM KZ-R2 Homologation Form No. 041-EZ-02 2022
 - <https://www.tmracing.it/en/download/homologation-041-ez-02-tm-kz-r2-2022/?wpdmdl=29926&refresh=63dcd0fe0aff1675415806>
- VORTEX RSZ Homologation Form No. 012-EZ-76 VERSION 1 - 15/02/2019

- All Models to be raced complete with carburettor, exhaust and ignition as supplied by the manufacturer and specified on the motors homologation form and must comply with/to the CIK FIA Technical Regulations for the KZ and KZ2 Engine Specifications.
- Only original TM components may be used as per TM spare parts lists - of each Homologated TM engine.
- Only original Vortex components may be used as per the Vortex spare parts list - of the Homologated Vortex motor.
- No modifications of these engines or any components including the exhaust and carburettor are permitted unless specifically noted.
- Polishing and porting is allowed on the condition that no material can be removed. Standard volumes must be maintained.
- Any modification or adjunction on these engines and its accessories, if not expressly authorized in these regulations, is forbidden. Drivers are responsible for the conformity of their equipment.
- All engines will be sealed after qualifying and will remain sealed for the entire race day. The seal is to be secured between the cylinder head bolt and the reed cover manifold and to be made as tight as possible. Should there be a technical reason for breaking the seal, you will need to take your kart to "Parc Ferme" and in consultation with the scrutineer carry out the breaking of the seal and necessary repair. The engine will then be resealed. Failure to follow procedure will result in a DQ on race day.
- Should a motor be replaced then the damaged motor is to remain in the care of the scrutineers until they say it may be handed back.

ENGINE TECHNICAL DESCRIPTION:

a. Cylinder cubic capacity

V volume engendered in the engine cylinder(s) by the upward or downward movement of the piston(s). This volume is expressed in cubic centimetres and, for all calculations concerning engine capacity, the number

“pi ” will be taken inclusively as 3.1416.

$$V = 0.7854 \times d^2 \times l \times n$$

With: d = bore; l = stroke; n = number of cylinders.

b. Ducts or passages

Ducts or passages are cylindrical or cylindrical-conical elements allowing the passage of gases whatever the length or position of these elements.

Number of ducts or passages: the number of real ducts or passages is the greatest quantity of cylindrical or cylindrical-conical elements which transmit gases from the pump casing to the top of the piston, as well as those which transmit gases from the outside of the cylinder to the inlet ports, or from the exhaust ports to the outside of the cylinder.

c. Inlet or exhaust port

A port is composed of the intersection of the periphery of the cylinder and the inlet or exhaust duct. This port is opened or shut by the passage of the piston.

d. Power valve

By « power valve » means any system which can alter by manual, electric, hydraulic or any other means the normal exhaust port timing or the normal flow of exhaust gases at any point between the piston and the final exhaust exit when the engine is running.

43. GENERAL

By engine is meant the propelling unit of the vehicle in running order, including a cylinder block, sump and gearbox, ignition system, carburettor(s) and exhaust silencer.

All systems of injection are forbidden. The spraying of products other than fuel is forbidden. The engine shall not comprise a compressor or any super-charging system.

Any modifications inside the engine may only be carried out by the removal of material. KZ2 and KZ engines must be described in the Manufacturer's catalogue and be the subject of a descriptive form called "Homologation Form" from the model established by the CIK FIA. This Homologation Form shall be stamped and signed by the ASN and the CIK-FIA (see the Homologation Regulations).

a. Cylinders

For UN sleeved engines, repairing cylinders is allowed by addition of material but not of parts.

Cylinder head: it is allowed to replace the spark plug thread by a heli-coil, must remain within factory specs.

b. Water cooling

Only water (H₂O) is authorised for liquid cooling. No glycol based antifreeze is allowed to be used.

For all categories using water cooling, radiators must be placed above the chassis frame, at a maximum height of 50 cm from the ground, at a maximum distance of 55 cm ahead of the rear wheels axle and they must not interfere with the seat.

All the tubing must be of a material designed to withstand the heat (150°C) and pressure (10 Bar). To control the temperature, it is only allowed to place at the front or at the rear of the radiator a system of masks. This device may be mobile (adjustable), but it must not be detachable when the kart is in motion, and it must not comprise dangerous elements.

Mechanical by-pass (thermostat type) systems, including by-pass lines, are allowed. In line Heat Exchangers are allowed in the water pipes.

c. Water pump

The water pump must be mechanically controlled either by the engine or by the rear wheels axle.

d. Carburettors and inlet duct

Any injection system is forbidden. Any spraying of products other than fuel is forbidden. The inlet duct (mechanical assembly between the homologated inlet silencer and the reed box) must comprise the inlet silencer, the carburettor and the reed box cover, as well as a possible adaptor, spacer and/or gaskets.

No additional component is authorised.

The adaptor (spacer) must have a transversal conical cylinder cross-section, be mechanically attached with tools and present neither any connections fitting together nor parts which overlap each other.

Furthermore, it is forbidden to have any connection resulting in an extra volume (including any groove, hollow space or other such spaces) at the level of the inlet duct. Carburetors in the KZ2 category for the FIA Karting Championships in 2019/2020/2021: technical [drawing No. 7](#) appended. Inline Heat Exchangers and Carburetor Tanks are permitted in the fuel line.

e. Ignition

In all categories the ignition system used must be homologated by the CIK-FIA. For the KZ2, KZ & KZ Masters categories, the ignition system used must be (as per the engines Homologation Form) of analogue type and any variable ignition system (system of progressive advance and delay) is forbidden.

Any electronic system allowing an auto-control of the parameters of functioning of the engine while the kart is in motion is forbidden.

f. Spark plug

The ignition spark plug must be mass-produced and remain strictly original. The spark plug barrel and the electrode insulation (electrodes not included) tightened on the cylinder head must not extend beyond the upper part of the combustion chamber dome.

The spark plug must be installed with its gasket.

A spark plug temperature probe is permitted and if it is min 1.2mm thick, after being fitted and/or used it can act as a spark plug gasket. The insulator must not exceed the spark plug body and the length of the spark plug body itself must be a max 18.5mm

g. Inlet Silencer (Air Box)

An inlet silencer homologated by the CIK-FIA is mandatory.

For the KZ2 categories: ducts of 30 mm maximum.

Variable volume air boxes are forbidden.

The obligatory homologated intake silencer must be used under strict observance of the following points:

If the rubber bush is reversible, it may only be cut on one side, the unused one located in the body of the silencer.

The part of the bush linking the silencer to the carburettor must be visible at all times and must be on the outside of the silencer. It allows the rear face of the silencer to be connected to the cylindrical shoulder of the carburettor.

h. Exhaust

In KZ2 the exhaust must be Engine Specifically homologated. In all categories the exhaust system shall discharge behind the Driver and shall not operate at a height of more than 45 cm from the ground. The exhaust silencer outlet, the external diameter of which must be more than 3 cm, must not exceed the limits of the body or bumper. All systems of « power valve » are forbidden.

i. Silencer

The Exhaust Silencer must be CIK - FIA Homologated.

See CIK – FIA Exhaust Silencer Homologation List

FUEL – COMBUSTIVE

a. Fuel

The requirements specified in these regulations are intended to ensure the use of fuels predominantly composed of compounds normally found in commercial fuel, and to prohibit the use of specific power-boosting chemical compounds.

All KZ and KZ2 competitors will only be permitted to use freely and commercially available 95 octane pump fuel.

b. Air

Only ambient air may be mixed with the fuel as a combustive.

45. CONTROLS

a. For the control, the following tolerances are allowed:

- Connecting rod centre line: +/- 0.2 mm
- Piston stroke: +/- 0.2 mm
- Crankshaft alone: +/- 0.1 mm
- Homologated gearbox: Value obtained after 3 engine rotations: +/- 3°
- Exhausts of all 125cc engines: +/- 1 mm
(piston, crankshaft & conrod, reed box, balance shaft):
- Dimensions: <25 mm - Tolerance: +/- 0.5 mm
- Dimensions: 25-60 mm - Tolerance: +/- 0.8 mm
- Dimensions: 60-100 mm - Tolerance: +/- 1 mm
- Dimensions: >100 mm - Tolerance: +/- 1.5 mm

Machined Parts:

- Dimensions: <25 mm - Tolerance: +/- 0.5 mm
- Dimensions: 25-60 mm - Tolerance: +/- 0.8 mm

- Dimensions: >60 mm - Tolerance: +/- 1.5 mm
- **Welded Parts:**
Dimensions: <25 mm - Tolerance: +/- 1.0 mm
- Dimensions: 25-60 mm - Tolerance: +/- 1.5 mm

Dimensions: >60 mm - Tolerance: +/- 3.0 mm

The units of measure (including derived units) will be those of the international system: unit of length in metres, unit of mass in kg, unit of time in s, and unit of noise level in decibels.

However, the following will be used: for the unit of angle, the ° (degree) instead of the radian; and, for the unit of temperature, the °C instead of the Kelvin.

b. Without tolerance, at all times and whatever the conditions may be:

Cubic capacities.

Diameter of the carburettor venturi. (30.0mm Max)

Mass measurement.

Combustion chamber volume. (11cc Min).

Any minimum and maximum value.

CHECKS TO BE DONE BY APPOINTED TECHNICAL CONSULTANT

a. Method for measuring the opening angles of the exhaust ports

All motors: Exhaust 196 +/- 1 degrees Max.

In order to make the measurement more accurate, a 0.20 mm thick and 5 mm wide wedge (according to technical drawing No. 18) will be used to establish the start and finish of the measurement.

This wedge will be gripped at the chord axis of each port, between the edge of the upper part of the piston ring or of the piston and its intersection with the edge of the inlet or exhaust port.

The position by which the gripping of the wedge will permit the measurement of the largest possible angle will be considered as the beginning and the end of the measurement of the angle.

This wedge may be set in position through the inside of the cylinder or through the duct of the exhaust port to be checked. It will not be mandatory on any account for the wedge to be placed in a horizontal or vertical position.

The reading will be carried out using a graduated disc with a minimum diameter of 200mm or a digital display measuring device operated by a coder.

b. Volume test for Combustion Chamber

On KZ2 Engines, the volume then measured minus the plug insert (2 cc) must not be less than 11 cc.

c. General method for measuring the volume of the combustion chamber

Remove the engine from the chassis.

Wait until the engine is at ambient temperature.

Have the cylinder head removed to check the protrusion of the spark plug.

Have the spark plug removed (check the 18.5 mm dimension).

Screw the plug insert in place of the spark plug (the plug insert, tightened on the cylinder head, must not extend beyond the upper part of the dome of the combustion chamber. It must be fixed to the cylinder in exactly the same way as the spark plug measuring 18.5mm long).

Make the top part of the piston and the periphery of the cylinder waterproof using grease.

Place the piston at top dead centre and block the crankshaft.

Carefully remove the excess grease.

Place the cylinder head back and screw it in at the torque recommended by the Manufacturer.

With a laboratory graduated burette (mechanical or electronic), fill the combustion chamber (with DEXTRON VI type oil) to the uppermost part of the top edge of the plug insert (wetting the plane of the head gasket).

d. Alternative method for measuring the volume of the combustion chamber

Remove the engine from the chassis.

Wait until the engine is at ambient temperature. 23

Have the spark plug removed (check the 18.5 mm dimension).

Screw in the plug insert in place of the spark plug (the plug insert, tightened on the cylinder head, must not extend beyond the upper part of the dome of the combustion chamber. It must be fixed to the cylinder in exactly the same way as the spark plug measuring 18.5mm long).

Place the piston at top dead centre and block the crankshaft.

With a laboratory graduated burette (mechanical or electronic), fill the combustion chamber (with DEXTRON VI type oil) to the uppermost part of the top edge of the plug insert (wetting the plane of the head gasket).

e. Squish Test

This can be used as an alternative for volume tests on race day between races.

A minimum squish of 1mm is permitted.

Measurement will be done with a digital Vernier at the smallest point of the wire up against the shoulder created by the piston.

The Vernier will be owned by the club and will be present on race days for any competitor to check squish prior to the sealing of the motor.

The solder wire to be used will be National Solder 97/3 2.0mm Solid Wire. The solder wire will have a tolerance off +/- 0.1 mm

The Solder Wire will be available from FKR.

The squish will be checked on both the left and the right side of the piston parallel to the gudgeon pin.

The average of the two measurements will be the measurement used for legality.

Procedure

Remove Plug

Insert solder to touch the cylinder wall directly above the Gudgeon pin.

With the solder wire in place the motor will be turned through top dead centre once.

The step on the solder will not be cut off.

The smallest point on the solder against the shoulder measured with a micrometer.

ENGINES

a. KZ2 CIK FIA specified.

Only reed-valve intakes are authorised.

The original parts of the homologated engine must always comply with and be as per the photographs, drawings, materials and physical dimensions described on the Homologation Form.

b. Modifications to the homologated engine allowed:

Reed Manifold can be modified eg. polishing, grinding, sand blasting. Strictly no material may be added. A maximum of 31.5 mm throat diameter is permitted.

Crankcase may be cleaned and polished and sand blasted. Strictly no material may be added. As per homologation sheet and only Original TM Racing parts as per the homologated motors to be used.

Crankshaft may only be statically balanced.

Standard Conrods as per homologated spares list may be polished but not lightened

Carburettors can be polished but the venturi must be a maximum of 30mm and the profile has to remain as per the original Dell'Orto VSH 30 CS profile

External Water Flow U Tube from Barrel to Crank Casing can be Removed and Sealed due to Seat positioning for the taller or larger competitor.

c. Modifications to the homologated engine not allowed:

Inside the engine:

The stroke,

The bore (outside the maximum limits),

The connecting rod centreline,

The number of transfer ducts and inlet ports in the cylinder and crankcase,

The number of exhaust ports and ducts,

The crankshaft may not be DYNAMICALLY BALANCED (grinding or removal of material is prohibited)

The Reed Valve must be as supplied with strictly no machining permitted, The restrictions according to the specific regulations.

d. Outside the engine:

number of carburettors and diameter of choke

All the clutch components must be original as per motors Homologation Form without any modifications.

External appearance of the fitted engine.

The following are not considered to be modifications to the external appearance of the engine:

Modification of the colour of the parts, the trimming of cooling connections and modification of the fixations (including but not limited to fixations of the carburettor, of the ignition, of the exhaust, of the clutch or of the engine itself), provided that their homologated position is not modified.

GEAR SHIFT

- a. Only hand operated gear shift is allowed
- b. Paddle shift with a push pull cable is permitted
- c. Any form of Ignition cutting is strictly forbidden

49. REAR AXLES

- a. It is permitted to have rear axle insert so as to strengthen the keyway area where the axle sprocket is located
- b. The maximum rear axle width from outside rim to outside rim is 1400mm (not tyres)

50. AIR BOX MODIFICATION

- a. Only CIK – FIA air boxes must be fitted
- b. In the event of rain to protect the motor from water damage a protective device may be fitted. This device must be securely fitted. Duct tape is permitted to help secure the device

51. MODIFICATION TO THE REGULATIONS

In order to guarantee the progress of the KZ2 Shifter Class, KZ and KZ Masters Class, the GP 125 Shifter Association Committee is mandated to and reserves the right to modify any clause of the technical regulations at any time. FKR needs to be notified of such changes 7 (seven) working days prior to an event taking place for ratification.

PREVIOUSLY GREY IMPORTED MUST BE REGISTERED BY THE OFFICIAL IMPORTER AFTER BEING CHECKED AND ACCOMPANIED BY A LETTER.

NO GREY IMPORTS WILL BE ALLOWED FROM THIS POINT ON.

c. TYRES

Dunlop CIK Prime

Dunlop Wet Weather Tyres

- If a tyre is damaged or deemed to be unsafe by the Clerk of the Course it can be exchanged for a used tyre of similar wear

8. FUEL & OIL

- All Fuel (95 Octane) and Oil must be purchased at the Formula-K Circuit
- The following oil will be allowed and available at the circuit:
 - Motul 800 2T
 - Fuchs Silkolen Pro 2 • FK2TModification of the basic fuel composition by the addition of any compound is strictly forbidden. This restriction also applies to the lubricant, which must not change the composition of the fuel fraction when added to the fuel. Furthermore,

as for the fuel, the lubricant must not contain any nitro- compounds, peroxides or any other engine power boosting additives.

9. PENALTIES

- All penalties if any, will be given by the COC
- **Nose Cone** – 5 place penalty as per the COC eg: if you finish 3rd but have a nose cone penalty you'll be placed 8th for that heat but you will still be allowed to start 3rd for the next heat.
- **Jump Start** – 5 place penalty as per the COC eg: if you finish 3rd but have a jump start penalty you'll be placed 8th for that heat but you will still be allowed to start 3rd for the next heat.
- **Underweight** – DQ (cannot be dropped and must be scored as a zero)
- **Any Technical Infringement** - DQ (cannot be dropped and must be scored as a zero)
- All other penalties will be as per the WOMZA GRR's for 2023 as well as the 2023 KSA WOMZA SKR's
- The rights of Protest is reserved and must be in writing to the race secretary within 30 minutes of the Official Results posted with the applicable Fees.

- **10.COMPETITION NUMBER**

Numbers will run in sequence from 1-999 and must be registered with FKR

- FKR KZ2 - Yellow background with black numbers
- FKR 125GP - Yellow background with black numbers
- 125GP Masters - Red background with white numbers
- FKR Clubmans - Green Background with white numbers