

19. KART CATEGORY

If a modification is not specifically authorized in this or previous applicable Sections of the Solo® Rules, it is not allowed.

Data acquisition systems are allowed in all kart classes.

See Appendices G and H for event conduct requirements.

19.1 KART MODIFIED (KM)

A. FRAME/DIMENSIONS

1. Chassis must be constructed of carbon steel alloy using traditional tubular construction. Nerf bars are required. Suspensions are prohibited. Differential mechanisms that allow the rear wheels to rotate at different speeds are prohibited.
2. Maximum width measured at any point shall be 55.0" (139.70 cm). Maximum length measured at any point shall be 84.0" (213.36 cm).
3. All karts shall have bodywork consisting of a nose cone, driver fairing, and side-pods. (Full width nose pieces are recommended.) Bodywork may not extend past the rear nerf bar. No metal bodywork is allowed (although metal number plates to allow use of magnetic numbers are permitted). Belly pans are allowed provided that they are fully confined within the frame rails and do not extend aft of the leading edge of the rear axle. No skirts or vertical aerodynamic sealing devices are allowed to extend below the main frame rails (this does not include the front fairing). No wings allowed.
4. Minimum weight for entrants in 125 cc shifter karts is 385 lbs. as raced, including driver, regardless of driver gender. Weights for entrants with karts having other engines are as listed in Section 19.1.D.4. Ladies Class may run with a 20 lb. weight reduction except engines listed in Section 19.1.D.4.
5. All non-structural weights must be affixed to the kart, seat, or driver in such a way as to prevent the weight from becoming separated from the kart/driver or moving freely during competition runs. For bolted-on weights, a $\frac{5}{16}$ inch (0.3125", 8 mm), SAE Grade 5 (Metric 8.8) or higher bolt must be used along with an oversize washer to prevent the weight from pulling through the seat, with a locking nut, pinch nut, double nut, or safety wire. No more than 10 lbs. of weight per bolt may be used. In addition to bolted-on weights, this also allows weights to be placed on the driver underneath a suit, to be placed inside the seat liners/inserts, and to be used with quick change mechanisms, thus facilitating addition and removal of weight during driver changes. Arm or wrist weights are prohibited. Ballast weights may not be mounted to nerf bars or moving parts.

B. WHEELS AND TIRES

1. Wheels must be metallic. 5" and 6" rim diameters are approved.

19. KART

2. Tires

- a. Tires must be no larger than 12.5" in diameter and no smaller than 9.0" in diameter as imprinted on tire. Tire width is limited to 5.5" for the front and 7.1" for the rear as imprinted on tire.
- b. Tire brand and compound are open. EXCEPTION: The tire must not appear on the following list, which may be altered at any time by the SEB upon notification of membership:
 - No tire models are currently listed.

C. BRAKES

1. MOTO AND ICC 125 CC SHIFTER KARTS: Moto and ICC shifter karts must have disc brakes that operate on all four wheels. The brakes shall be a dual system, arranged in a manner to provide braking for at least two wheels in the event of failure in part of the system.
2. OTHER ALLOWED KARTS: Other karts that are allowed to compete in KM (see Section 19.1.D.3 below) may use a braking system that complies with the rules to which the kart is prepared (e.g., WKA®, IKF®). The competitor is responsible for providing the rules to which the kart is prepared (i.e., an 80 cc shifter or 100 cc clutch type is not required to have front brakes). All karts with engine configurations other than moto/ICC 125 cc, that are allowed to compete in KM, must have at a minimum, a single rear disc that brakes both rear wheels equally and adequately for the power-plant used. The addition of front brakes is optional.
3. A "brake safety cable" or redundant brake pedal connection is required in all karts.

D. ENGINE

1. MOTO: Engines must be mass-produced, single cylinder, motocross motorcycle engines up to 125 cc displacement and of the current year's production or older. No prototype, pre-production, "works-type motors," or road race engines are allowed. Engines may be liquid- or air-cooled. Induction may be piston port or case reed type only. OE parts can be interchanged from any year model of the same brand name and similar model of motor (i.e., CR to CR, YZ to YZ), provided that these parts are normally commercially available over the counter in the US to all competitors.
 - a. BORE/STROKE: Bore must not exceed 1.0 mm (0.040") greater than the standard, factory dimension. Stroke must be within plus or minus 0.010" (0.254 mm) of the standard, factory dimension.
 - b. CARBURETION: One carburetor, single-venturi, float bowl type. Twin pump floatless recirculation systems are allowed. Pumper-type carburetors and axle/electric fuel pumps are not allowed. Intake manifold and reed assembly are unrestricted. Must use pulse-driven fuel

- pump.
- c. **CRANKSHAFT/CONNECTING ROD:** Crank and rod assembly must be OE components. No structural modifications may be made to the assembly (i.e., the machining, boring, or polishing of counter balances or rod, machining for the purpose of weight reduction, heavy metal balancing, altering crank pin location) are expressly prohibited. Sanding or polishing the crankshaft or bearing journals for the purpose of allowing a slip fit of the bearings is allowed. The two main bearings, big end bearing, and small end bearing are not tech items.
 - d. **CYLINDER AND CYLINDER HEAD:** The cylinder and/or head, including ports, power-valves, and castings, may be modified or machined subject to the requirements of Section 19.1.D.1.e. Water inlets and/or outlets may be modified for aftermarket fittings and/or hoses. Adding or deleting cylinder ports or re-sleeving is not allowed.
 - e. **EXTERNAL MODIFICATIONS:** All exterior engine components (e.g., cylinders, heads, case halves) must remain recognizable as OE parts. Kick starter assembly may be removed and plugged. *Non-OE electric start is allowed as long as it serves no other purpose. Modifications to mount external electric starter are allowed including replacement of crankshaft nut and/or washer securing flywheel.* The kick start boss may be altered to facilitate the use of a straight intake manifold. However, evidence of the original kick-start boss must be obvious. Machining of the reed block/intake boot mounting boss on the case that reduces the original distance between the outer surface and the piston (reducing intake tract) is not allowed.
 - f. **IGNITION:**
 1. **OE IGNITION:** Only OE ignition components for specific engine(s) are allowed, except that spark plug, spark plug cap, and plug wire are unrestricted. Modifications (i.e., rewinding, alteration of permanent magnets) to stator and flywheel are not allowed. *EXCEPTION: Modifications to mount electric start described in Section 19.1.D.1.e allowed.* **EXCEPTION:** Modifications to change the static timing are allowed in all Moto engines. Origin of spark coil is unrestricted, but it may not possess any function which serves to alter ignition timing.
 2. **NON-OE IGNITION:** Non-OE Capacitive Discharge Ignition (CDI) may be used provided that the stator, rotor, and flywheel (including any wires and connectors) must be OE and may not move by any remote device. *EXCEPTION: Modifications to mount electric start described in Section 19.1.D.1.e allowed.* Furthermore, the ignition system may not control the fuel induction system in any manner. Ignition interrupt systems (e.g., speed shift, no-lift-shift systems) are specifically disallowed. The CDI must be normally

commercially available over the counter in the US to all competitors. Use of any non-OE ignition CDI, programmable or pre-programmed, incurs a 25 lb. weight increase.

- g. EXHAUST SYSTEMS: Exhaust system is unrestricted. No “on-course” adjustment of exhaust system is allowed.
 - h. PISTON ASSEMBLY: Piston assembly is open, including piston, ring, wrist-pin, and circlips. Coatings are allowed.
 - i. TRANSMISSION: OE cases must be used. Transmission gear sets are exchangeable within a manufacturer’s engine series as an update/backdate allowance. This does not allow substitution of gears with those from another manufacturer or aftermarket parts. Shifter mechanisms must be manually operated; no air or electric assisted shifters are allowed.
 - j. CLUTCH: A wet-type clutch must be used. All components must be in full and original working order. The clutch inner and outer basket & pressure plate must be OE. Lightening of the clutch assembly by machining or grinding is allowed. Springs, discs, and plates may be aftermarket parts. Clutch may be operated by either cable or hydraulic cylinder but must be manually operated. No electronic or pneumatic clutch controls allowed.
2. KZ (ICC): All current or prior approved CIK®/FIA® engines are allowed. Engine must be a liquid-cooled, single-cylinder, 125 cc design with a single reed-valve circuit. All engine, intake, exhaust, ignition, and transmission components must be CIK®/FIA® homologated except where otherwise specified. However, components may be interchanged between model years of the same engine manufacturer and brand. Karts with ICC engines must conform to chassis, braking, wheel, and tire regulations of the Section 19.1 and must run at 410 lbs.
- a. CYLINDER: Polishing, grinding, and cleaning of the port area are allowed. Resurfacing of cylinder mating surfacing surfaces is allowed. Reed block, reed cage, and reeds are open. No ports may be added. Total exhaust duration must not exceed 199°.
 - b. CYLINDER HEAD: Machining of the cylinder head is allowed. Combustion chamber volume must be at least 13.4 cc as measured with the LAD tool.
 - c. INDUCTION: Air box is required and must meet current or prior CIK® homologation. The carburetor must meet current or prior CIK® homologation and not exceed 30.6 mm maximum bore.
 - d. EXHAUST PIPE: Pipe must be CIK® homologated for the brand of engine being used as supplied by the manufacturer. The CIK® homologation stamp must be present on the pipe.
 - e. EXHAUST SILENCER: Make and manufacturer are open spec. Silencer

must meet sound requirements.

- f. TRANSMISSION: Transmission components must be standard parts. This means if an aftermarket part is substituted, it must be of similar dimensions as the original part. The weight of the replacement part will not be less than the standard part. The outside diameter and tooth count of the replacement gears must be the same as the standard part. Grinding or polishing transmission parts to provide a better mesh is allowed.
 - g. IGNITION: Ignition must be CIK® homologated for the brand of engine being used as supplied by the manufacturer.
 - h. SPARK PLUG: Spark plug must be standard, commercially available spark plugs. The body of the spark plug (electrodes not included, tightened on the cylinder head) must not extend beyond the upper part of the dome of the combustion chamber. Dimensions: 18.5 mm length, 1.25 thread pitch. NOTE: This is checked with gasket or temperature sending unit in place.
 - i. CRANK, ROD, AND FLYWHEEL: Crank, rod, and flywheel assembly must be standard components. No modifications will be made to the assembly. Therefore, the machining, boring, or polishing of counter balances or rod, machining for the purpose of weight reduction, heavy metal balancing, or altering the crank pin location are all expressly prohibited. Sanding or polishing the crankshafts or bearing journals for the purpose of allowing a slip fit of the bearings is allowed. The two main bearings, big end bearing, small end bearing, piston, piston pin, ring, and clips are all non-tech items.
 - j. COOLING: An electric water pump may be added to allow circulation of coolant while stationary. The pump, battery, and associated plumbing shall serve no other purpose.
 - k. SHIFTING: Mechanical gearbox control only. No ignition interrupt systems allowed.
3. ROTAX DD2: 125 cc 2-speed shifter kart with centrifugal clutch. The engine and clutch must be stock and complete with a passport matching serial number of the engine and seal. Rotax passport is an engine identification card unique to each individual engine with serial numbers and service history recorded. The seal is provided by authorized Rotax service centers and includes a black anodized aluminum seal with a Rotax stamp and serial number matching passport ID. There is a steel cable running through the seal, intake flange screw, cylinder stud, and cylinder head cover screw. Only authorized Rotax dealers may repair and re-seal the engine, updating the passport. The stock no-lift system is compliant. All KM-compliant tires are allowed for the DD2 engine. Minimum weight is 385 lbs.
4. OTHER ENGINES: Engines must be either:

19. KART

- a. mass produced single cylinder two-stroke engines not to exceed 125 cc or
- b. mass produced single or twin cylinder, four-stroke engines not to exceed 250 cc of total displacement. No prototype, pre-production, “works-type” motors or road race engines are allowed. Shifter or gearbox type motors are prohibited. Karts with engines under this specification must run at a minimum weight of 360 lbs. EXCEPTION: The engine must not appear on the following list, which may be altered at any time by the SEB upon notification of membership:
 - No engines are currently listed.

E. MISCELLANEOUS SPECIFICATIONS:

- 1. Chain guards are required on all engines.
- 2. Overflow lines for carburetor and radiator, if present, must terminate in an overflow bottle of at least 2 oz. (59.1 mL) capacity.

F. FUEL

Fuel must consist of gasoline and oil only. No oxygen and/or nitrogen bearing additives are allowed.

G. DRIVER SAFETY EQUIPMENT

- 1. NECK BRACES: An unaltered, collar type neck brace designed for motor sports use, is mandatory. Kart-specific neck braces are recommended.
- 2. DRIVER APPAREL: Drivers are minimally required to wear jackets of leather, vinyl, or abrasion resistant nylon or equivalent, and full length pants to prevent or minimize abrasions. Full abrasion kart suits are recommended. Shoes, socks, and abrasion resistant gloves are mandatory.
- 3. SEAT POSITIONING: When normally positioned in the kart for competition, the entirety of the driver shall be within the perimeter of the kart and the driver must be able to reach and operate all controls. Loose cushions or pads that prevent the driver from being adequately supported by the sides of the seat are not allowed.

H. DRIVER

Minimum age requirement is 15 years old to participate in KM.

19.2 FORMULA JUNIOR

A. CLASSES

- 1. Junior class A (JA)
 - a. AGE: 12 years to 18 years
 - b. ENGINES:
 - 1. Briggs & Stratton® Animal® LO 206®
 - A. FUEL: Gasoline only
 - B. WEIGHT (LBS)..... 275
 - C. Carburetor, clutch, and exhaust as supplied with engine by

manufacturer.

D. Engine must remain sealed as from manufacturer.

2. Briggs & Stratton® Raptor®

A. FUEL: Gasoline only (Methanol not allowed)

B. WEIGHT (LBS)..... 290

C. OTHER: Balanced and blueprinted engines are allowed, but no Controlled Stock, Modified, Limited Modified, or Open Motors.

3. Briggs & Stratton® World Formula®: As homologated except it is permissible to use an alternate chain/sprocket/gear (type 35).

A. FUEL: Gasoline

B. WEIGHT (LBS)..... 310

C. Electric starter and battery may be removed.

D. Older versions of the Briggs & Stratton® World Formula® engines may be upgraded by exchanging the ignition module and flywheel with the current production PVL ignition system (Briggs & Stratton® part #557127).

4. Rotax® Mini-Max®

A. FUEL: Gasoline and oil

B. WEIGHT (LBS)..... 330

C. Carburetor, clutch, radiator, and exhaust as supplied with engine from manufacturer. Exhaust and carburetor restrictors must be used in accordance with Rotax® Mini-Max® rules.

D. The Rotax® Mini-Max® spec gearing of 13-tooth drive gear and 82-tooth axle gear is required.

E. Rotax® Motor Identity Card (AKA Passport®) is required for proof of sealed motor.

5. Yamaha® KT-100®, only heads with OEM casting “Yamaha®” and cylinders with Y3® or Y4® and 787® are legal

A. FUEL: Gasoline and oil

B. WEIGHT (LBS)..... 330

C. CARBURETOR: Walbro® WB3A®

D. EXHAUST: RLV® SSX-V® (4-hole)

c. JB or JC karts may compete in JA. The driver must meet JA age restrictions and the kart must be compliant with JB or JC requirements.

2. Junior class B (JB)

a. AGE: 8 years to 12 years

b. ENGINES:

1. Briggs & Stratton® Animal® LO 206®

- A. FUEL: Gasoline only
 - B. WEIGHT (LBS)..... 250
 - C. Carburetor, clutch, and exhaust as supplied with engine by manufacturer.
 - D. Engine must remain sealed as from manufacturer.
 - E. RESTRICTOR: A specific throttle slide restrictor (Briggs & Stratton® "Blue" slide, part #555734) must be installed in the carburetor.
2. Briggs & Stratton® Raptor®
- A. FUEL: Gasoline
 - B. WEIGHT (LBS)..... 260
 - C. Balanced and blueprinted engines are allowed, but no Controlled Stock, Modified, Limited Modified or Open Motors.
3. Briggs & Stratton® World Formula®: As homologated except it is permissible to use an alternate chain/sprocket/gear (type 35).
- A. FUEL: Gasoline
 - B. WEIGHT (LBS)..... 270
 - C. RESTRICTOR: A specific throttle slide restrictor must be installed in the carburetor along with cap lock to limit throttle opening (0.420", 10.67 mm). A Briggs & Stratton® check tool used during installation ensures the throttle slide opening is compliant. Contact the SCCA® Solo® Department to obtain a restrictor kit.
 - D. Electric starter and battery may be removed.
 - E. Older versions of the Briggs & Stratton® World Formula® engines may be upgraded by exchanging the ignition module and flywheel with the current production PVL ignition system (Briggs & Stratton® part #557127).
4. Clone Motors
- A. FUEL: Gasoline
 - B. WEIGHT (LBS)..... 265
 - C. Motor must remain completely standard with the exception that the "governor" may be removed (no modifications or changing of the flywheel, exhaust, carburetor, etc.).
5. Comer® K-80®
- A. FUEL: Gasoline and Oil
 - B. WEIGHT (LBS)..... 250
 - C. Carburetor, exhaust, and clutch as supplied with engine from manufacturer.

6. Rotax® Micro-Max®
- A. FUEL: Gasoline and oil
 - B. WEIGHT (LBS)..... 260
 - C. Carburetor, clutch, and Micro-Max spec exhaust and radiator as supplied with engine from manufacturer. Exhaust restrictor and carburetor sleeve throttle stop must be used in accordance with Rotax® Micro-Max® rules.
 - D. The Rotax® Micro-Max® spec gearing of 14-tooth drive gear and 73-tooth axle gear is required.
 - E. Rotax® Motor Identity Card (AKA Passport®) is required for proof of sealed motor.
7. Yamaha® KT-100®, only heads with OEM casting “Yamaha®” and cylinders with Y3® or Y4® and 787® are compliant.
- A. FUEL: Gasoline and Oil
 - B. WEIGHT (LBS)..... 265
 - C. CARBURETOR AND EXHAUST:
 - 1. Walbro® WA55B® or HPV1® with WA55B® manifold with RLV® SSX-V® exhaust or
 - 2. Walbro® WB3A® carburetor and 0.600 restrictor plate with RLV® YBX® exhaust.
 - 3. If hole exists in pipe for EGT sensor, EGT sensor probe must be in place.
- c. JC karts may compete in JB. The driver must meet JB age restrictions and the kart must be compliant with JC requirements.
3. Junior class C (JC) - This is a Regional-only, RESTRICTED AVAILABILITY class; available by prior approval from the SCCA® National Office only.
- a. AGE: 5 to 8 years
 - b. ENGINES:
 - 1. Comer® 50/51
 - a. FUEL: Gasoline and oil
 - b. WEIGHT: No restriction is imposed at this time.
 - c. Carburetor, exhaust, and clutch as supplied with engine from manufacturer.
 - 2. Honda GHX50
 - a. FUEL: Gasoline only
 - b. WEIGHT: No restriction imposed at this time.
 - c. Yellow oil alert wire *MUST* be disconnected or cut.
 - d. Must comply with *GXH50_Class_Rules.pdf* (see SCCA® website or

contact Solo® Department for details).

- c. CHASSIS: “BabyKart,” “Kid Kart,” and “Cadet Kart” size racing-style chassis only. Intermediate- and full-sized racing chassis are inappropriate for this class regardless of any adaptation or modifications.
- d. TIRES: Maximum size for front tires is 4.60/10.0-5. Maximum size for rear tires is 5.00/11.0-5. Tire brand and compound is restricted to the MG® HZ “Red.” Also, Cadet-designated tires from any manufacturer are allowed.

Regions may add Formula Junior classes which extend the maximum age range, but such classes may not allow additional modifications beyond those of JA/JB as documented herein.

B. CHASSIS

Formula Junior will follow Section 19.1.A. 2. Additionally, Cadet-sized chassis (overall length 69”; wheelbase 35” minimum and 38” maximum) is approved for all engine configurations in JB. All Junior karts will follow Section 19.1 items pertaining to construction materials and ballast.

C. WHEELS AND TIRES

For JA and JB classes: Maximum tire size for front tires is 4.60/10-5; maximum size for rear tires is 6.00/11.0-5. Tire brand and compound is restricted to the MG® HZ “Red.”

Kart-specific “rain tread” tires of any durometer reading may be used at a rain event. The tread pattern may not be modified. Declaration of a rain event is at the discretion of the Youth Steward. Once an event has been declared a rain event, it remains a rain event and rain tires or the class-specified dry tires are permitted.

D. CLUTCHES

Unless otherwise stated, wet or dry clutches are allowed for all classes. Jackshaft clutch drives for 2-cycle engines are allowed, but must be securely fastened to the engine and/or engine mount. No frame mounted Jackshafts. Axle clutches are not allowed. World Formula® clutches must be as homologated except it is permissible to use an alternate chain/sprocket/gear (type 35).

E. SAFETY EQUIPMENT

- 1. Must follow Section 19.1.G. In addition to meeting the requirements of Section 4.3.1, helmets for Formula Junior drivers must be of closed face design, incorporating full face shields and chin bars.
- 2. KILL SWITCH: All drivers must demonstrate the ability to shut down the engine both while driving and stationary. It is suggested that the kart have an operational ignition kill switch within easy reach of the driver in the normal operating position.
- 3. SEATS: It is not permissible to use any type of strap or seat belt. In the

event a kart is upset, a driver must be able to exit the kart unrestrained by a seat belt or strap. It is recommended to utilize some form of seat insert and pedal extensions to fit drivers of different sizes to one seat.

4. A “brake safety cable” or redundant brake pedal connection is required in all karts.

F. BODYWORK

Providing Sections 19.1.A and 19.2 are met and the kart is prepared to the rules of a nationally recognized sanctioning body (e.g., WKA®, IKF®, CIK®), any style bodywork may be used.

G. ACTION OR PROTEST

Any disciplinary action or protest needed to be taken against a Junior Driver and/or Kart will be addressed to the parent/legal guardian listed on the Minor Waiver of that Junior Driver. Along with the above, the parent/guardian is reminded of Sections 9.1.F and 9.1.G. covering his/her own conduct.