Canadian Karting Regulations

Book 2

Technical Regulations

To be read and applied in conjunction with:
Canadian Karting Regulations Book 1, Sporting Regulations

Effective January 1, 2005

ASN CANADA FIA IS THE GOVERNING BODY OF MOTORSPORT IN CANADA

APPOINTED BY

THE FÉDÉRATION INTERNATIONALE DE L'AUTOMOBILE

Racing with Safety

Price: $5.00

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1. THESE TECHNICAL REGULATIONS

The Spirit and Intent will be the standard by which these Regulations are enforced.

Compliance with ASN Technical Regulations does not necessarily ensure eligibility of karts by other sanctioning bodies.

Should doubt exist in the mind of a competitor, manufacturer, distributor, or Official as to the interpretation or application of these Regulations, the competitor, manufacturer, distributor, or Official is encouraged to first communicate in writing, by fax or e-mail to the ASN Canada FIA office. Verbal inquiries will not be considered.

In determining questions of eligibility of a kart, or the presence, absence or condition of a component of a kart, ASN licenced officials shall be guided by the principle:

"IF THE REGULATIONS DO NOT STATE THAT YOU CAN DO IT, YOU CAN NOT"

It is the entrant and/or driver's responsibility at all times to ensure the ongoing compliance with mechanical safety and chassis, bodywork and engine technical eligibility of the kart. A claim of lack of knowledge in the event of a kart being found ineligible, will not be considered.

ASN affiliated Clubs and Regions may adopt these Technical Regulations for use within their own organization. Clubs and Regions are encouraged to appoint a Technical **Delegate** and Assistants.

2. PARTS, COMPONENTS, MEASUREMENTS

All replacement parts are subject to these Regulations. Any part, hole, shape, dimension or measurement not listed in these Regulations does not exclude it from inspection.

Production changes by the manufacturer of an engine, kart or part for a kart, or manufacturer of an aftermarket part causing any part not to conform to the specifications, or not to conform with the Spirit and Intent of these Regulations are subject to a decision by the ASN Canada FIA office, as to whether or not the part will be considered eligible and permitted for use in competition.

Manufacturers manuals are part of the equipment specifications and may be used to reference eligibility of components.

3. EQUIPMENT ENTRY REGULATIONS

3.1. Formula A, Formula Super A, Formula C, ICA, ICA JR, ICC

Two engines of the same manufacturer **are permitted** and two chassis of the same manufacturer **can be registered** for each entry and must be noted by serial number on the **Pre-Technical Inspection Self-Declaration form or** Technical Passport. **The use of the second chassis may only occur if there is physical damage (to be considered unsafe or broken) to the first chassis upon approval by the Technical Inspector.**

3.2. Rotax Max

The number of engines permitted will be in accordance with the International Rotax Max Regulations and must be noted by serial number on the **Pre-Technical Inspection Self-Declaration form or** Technical Passport.

3.3. World Formula

Two engines and one chassis are permitted for each entry and must be noted by **serial number or** identification number on the **Pre-Technical Inspection Self-Declaration form or** Technical Passport. Changing chassis may occur only if there is physical damage (to be considered unsafe or broken) upon approval by the Technical Inspector.

3.4. All Other Classes

Two engines of the same manufacturer and one chassis are permitted for each entry and must be noted by serial number on the **Pre-Technical Inspection Self-Declaration form or** Technical Passport. Changing chassis may occur only if there is physical damage (to be considered unsafe or broken) upon approval by the Technical Inspector.

3.5. Repairs or Replacement After Technical Marking

a) Repairs requiring the breaking of a seal or loss of a mark **or changing of a chassis** must be accomplished under the Scrutiny of a Technical Inspector. The appropriate parts must re-marked and the entrant must start at the rear of the grid.

b) **Formula A, Formula Super A, Formula C, ICA, ICA JR, ICC: Engines that have** been registered on the **Pre-Technical Inspection Self-Declaration form or** Technical Passport can be replaced intact at any time during the event with **engines** also registered by the entrant without penalty.

c) **Rotax Classes:** Repair and/or replacement must be in accordance with Rotax International regulations.

d) **All Other Classes:** If the second engine noted on the **Pre-Technical Inspection Self-Declaration form or** Technical Passport is used, there is no penalty.

e) **Four-Cycle Honda Classes:**

There will be NO valve lash adjustment or inspection allowed under the valve cover seal, except for proven breakage or malfunction.

Cleaning of carburetors is permitted. The cleaning must be approved by, and accomplished under the scrutiny of a Technical Inspector. The appropriate parts must be re-marked with the entrant retaining their position on the starting grid.

3.6. Exchanging of Equipment

There shall be no exchanging of tire(s), engine(s), or chassis between entrants.

If an entrant is competing in more than one class, there shall be no exchanging of tires between those classes.

4. PRE-RACE TECHNICAL INSPECTION

There are two methods for Pre-Race Technical Inspection. The method used must be declared in the Supplementary Regulations.

4.1. Pre-Technical Inspection Self-Declaration

At Registration each participant must submit a fully completed Pre-Technical Inspection Self-Declaration form. Registration will issue the appropriate kart sticker for the event only after payment of all event fees and completion of all required paperwork.

It is the competitor's responsibility to ensure that their kart meets the technical requirements for the class through the entire race event. Drivers found on the track without having completed a Pre-Technical Inspection Self-Declaration form are subject to penalty.

Any Kart, safety equipment or apparel is subject to Technical Inspection at any time.

The Pre-Technical Inspection Self-Declaration form is retained by the Technical Delegate.

4.2. Technical Passport With Inspection

It is the responsibility of the entrant to present the Kart, safety equipment and apparel exactly as it is to be raced in the event. A Technical Inspector **may examine the Kart**, safety equipment **and apparel**. Submitting a Kart, safety equipment and apparel to a Technical Inspector shall be considered as an implicit statement of conformity.

When a Technical Passport is supplied to the entrants, the required information must be **completely** filled **in** before presenting the Kart, **safety equipment and apparel** for Technical Inspection. If not completed when presented, or if the entrant does not have all of their safety **equipment or** apparel available, the entrant may lose their place in the technical inspection queue.

The Technical Passport is retained by the Technical Delegate.

5. TECHNICAL MARKING PROTOCOL

5.1. Responsibility for Marking and Sealing

It is the responsibility of the driver/entrant to ensure that the entry has been properly marked or sealed for competition and Technical Inspection (engine, tires, and chassis where required). Failure to do so may cause penalty, as determined by the Steward or Clerk of the Course.

5.2. Pre-Race Component Marking and Sealing

a) The engine, tires and **chassis** used by an entrant in qualifying will be marked or sealed by a Technical Inspector at some point before, during, or after the qualifying session of the entrant, before the entrant leaves the weigh-in area after qualifying.

b) **Dependant upon class** all engine **and chassis** markings must **either** form a seal **from one part to another or be an identifying mark.**

c) All tires must have been marked on the inner sidewall in a manner determined by a Technical Inspector at some time before leaving the weigh-in area after qualifying.

5.3. Parc Fermé Component Marking and Sealing

When a Parc Fermé is used, all tires, fuel tanks, and fuel supply reservoirs shall be marked with the competition number of the entrant, at a determined time, before qualifying.

5.4. Four-Cycle Engine Paint/Seal Marking

Exhaust nut to exhaust flange.

Crankcase side cover to crankcase or cover bolt.

Flywheel shroud bolt to shroud (avoid throttle linkage).

One carburetor retainer nut to air filter adapter.

Carburetor bowl retainer bolt to bowl on all models**.**

Valve cover bolt to valve cover (one of upper two).

One exposed head bolt to the head.

5.5. World Formula Engine Paint/Seal Marking

Crankcase side cover to crankcase or cover bolt.

Intake manifold retainer to head.

Valve cover bolt to valve cover.

Mark carburetor.

5.6. Two-Cycle Engine Paint/Seal Marking

a) Formula A, Formula Super A, Formula C, ICA, ICA JR, ICC:

For air-cooled engines: one cylinder retainer nut, or head nut, sealed to the head.

For water cooled engines: one cylinder retaining nut sealed to the case, or one through cylinder retaining bolt or nut sealed to the head**. If the head retainer bolts are not exposed, the head water jacket cover is to be sealed to the exposed retainer.**

In ICC also mark the crankcase, carburetor body, cylinder and head.

In ICA also mark the crankcase, cylinder and head.

b) All other Two-Cycle Classes:

One head nut to the head.

Cylinder retaining bolt/nut to cylinder, where applicable.

Carburetor mounting nut or bolt to carburetor, OR carburetor to engine.

Carburetor pumping diaphragm cover bolt to carburetor body (where applicable).

Carburetor metering diaphragm cover to carburetor body.

Crank case half to other case half.

Flywheel retaining nut to crankshaft, or ignition cover to retainer.

One exhaust header retainer to exhaust header.

Each intake silencer baffle tube to the silencer.

Intake silencer retainer to silencer (optional).

Rotary valve cover to retainer or crankcase (if applicable).

6. POST-RACE TECHNICAL INSPECTION

a) At the conclusion of any track session, the Steward and/or Technical Inspector may select karts for inspection, and the competitors involved shall without delay take the selected karts directly to the Parc Fermé/Technical Impound/Inspection area.

b) At the conclusion of a race all karts are deemed to be impounded and must remain in the exact condition in which they left the race track until released by the Steward and/or Technical Inspector or a designate.

c) It is incumbent on the entrant/driver to determine whether or not their kart has been selected for inspection by reporting immediately to the Parc Fermé/Technical Impound/Inspection area for inspection or release by a Technical Inspector or designate.

d) Failure to present the kart promptly at the Parc Fermé/Technical Impound/Inspection area when requested may result in a fine and/or exclusion from the results of a qualifying session or race. Any such penalty is not subject to protest or appeal.

e) One entrant representative must attend each kart at the Parc Fermé/Technical Impound Inspection Area. Technical inspection may begin **on a kart or engine** without the representative being **present**.

f) In addition to the vehicle and its components, anything mounted on or in a kart may be impounded by the Steward or Technical Inspector.

g) The entrant/driver is responsible for all costs, if any, associated with the teardown, inspection and rebuilding of any component(s) selected for eligibility verification by the Steward and/or Technical Inspector.

h) A qualifying position or a race finishing position, and any Club or Series points and other awards available to a competitor that is subjected to an eligibility verification, may be withheld until the results of any inspection are determined.

i) The entrant/driver is responsible for ensuring that the kart is returned to proper operating condition after any impound or inspection by Technical Inspectors or support personnel. Protests will not be allowed in this regard.

j) Technical inspection begins when the inspector checks the technical engine markings and the tire markings. If any seals are broken or missing, or tires or chassis unmarked, then the entrant is excluded **from the results but the engine or other components may still be inspected as determined by the Technical Inspector.** If the seals are unbroken and present a detailed engine inspection **should begin** to a level determined by **the** Technical Inspector.

k) If, at any point during the inspection, an engine is found to be in contravention of these Regulations, the inspection **may proceed at the discretion of the Technical Inspector.** The Technical Inspector will notify

the Stewards that the entrant is to be excluded **upon completion of the inspection**. If the entrant does not submit **an approved complete** Refusal of Appeal form, the part(s) in question should be retained by the Technical Inspector. **If the entrant wants the part(s) in question to be returned it is the responsibility of the entrant to obtain the approved Refusal of Appeal form and submit the completed form to the Chief Steward. If the part(s) in question are removed from the impound area by the entrant without a Refusal of Appeal form being submitted the entrant will be excluded from the results and no protest or appeal can be submitted.**

The Technical Inspector or Technical Delegate shall label the impounded racing equipment and one of these officials will be responsible for providing the impounded racing equipment at an appeal hearing if called.

l) The Technical Inspector may use any tool(s) required for the inspection.

m) On the day of the event, the decision of the Technical Inspector is FINAL, for event award presentation purposes.

7. TECHNICAL RULES FOR WET RACING

When wet racing conditions are declared, all Technical Regulations will be adhered to, except as follows:

a) If rain tires are to be used they are defined as any production type tires that have been manufactured by any Kart tire manufacturer specifically for wet weather conditions.

b) Modified, grooved or otherwise altered dry condition tires are not acceptable.

c) The rear wheels may be moved inward, to narrow track width to the limit permitted in the Technical Regulations for minimum width, but the axle ends may not protrude beyond a plane drawn across the outer face of the rear wheel.

d) The requirement that the wheel/tire is the widest part of the Kart is waived.

e) A deflector or add-on hose may be added to the carburetor intake and/or filter cup on four-cycle engines provided that such additions do not provide a ram-air effect.

f) Waterproofing of ignition systems in two-cycle classes is permitted.

g) Closing of side pod openings is permitted during a wet condition track session.

8. GENERAL SPRINT KART SPECIFICATIONS

8.1. Eligible Chassis

a) In the Rotax Max Challenge **classes**, only chassis allowed by the International Rotax Max regulations are permitted.

b) For all other classes, eligible chassis include those homologated/registered by the CIK-FIA and any chassis that in the opinion of ASN Canada FIA reasonably meet the intent and technical requirements of these regulations. Decisions regarding technical eligibility and compliance in all classes are reserved for the ASN Canada FIA Technical Delegate.

c) Decisions made on chassis eligibility are final and are not subject to protest or appeal.

8.2. Main Frame Construction

a) In addition to compliance with the Spirit and Intent of the Rules, overall quality of workmanship is considered in the acceptance of a Kart presented for competition. Tubular steel construction is the only type of frame design method currently considered to be within the Spirit and Intent of the Rules of all classes.

b) Kart frames not registered with or homologated by the CIK-FIA may be considered for eligibility for **the** Formula A, Formula Super A, Formula C, ICA, ICA JR, and ICC classes if they conform to all CIK-FIA requirements.

c) The frame must be made from a ferrous, magnetic material.

d) The centers of main frame rail tubes may be no higher than a line projected horizontally between the centers of the front and rear wheel hubs.

e) Minimum tubing outer diameter: 1.000" (25.4 mm)

f) Maximum tubing outer diameter: 1.400" (35.56 mm)

g) Minimum tubing wall thickness for tubing 1.125" OD or less: 0.078" (1.98 mm)

h) Minimum tubing wall thickness for tubing over 1.125" OD: 0.060" (1.53 mm)

8.3. Roll Cages

The addition of a roll cage to the kart chassis-frame is not permitted unless there is a class designation for roll cage equipped karts. Karts with roll cages are not permitted to run on a track at the same time as karts without roll cages.

8.4. Overall Measurements

a) Wheelbase - measured between front and rear true axle centers: Min. 40.0 inches (101 cm)
Max. 43.0 inches (110 cm)

b) Minimum track width: measured center to centre of front or rear tire sets: At least 2/3 of the wheelbase used.

c) Maximum overall width: all four cycle classes: 50.0 inches (127 cm)

d) Maximum overall width: all two cycle classes except ICA JR: 55.1 inches (140 cm)

e) Maximum overall width: ICA JR: 53.5 inches (136 cm)

f) Maximum overall length measured without front nose cone: 74.0 inches (188 cm)

g) Maximum height: measured from the ground to the uppermost part of the Kart: 26.0 inches (66 cm)

h) Minimum Kart weight, less driver: fully equipped and race ready all classes except Formula A, ICA and ICA JR: 130 lbs (59 kg)

i) Minimum Kart weight, less driver: fully equipped and race ready Formula A, ICA and ICA JR: 143 lbs (65 kg)

j) Maximum Junior Kart weight, less driver: fully equipped and race ready all classes except Junior Shifter, ICA JR, Rotax Max Junior, World Formula Junior: 200 lbs (91 kg)

8.5. Chassis Suspension

The use of or attempt to create and/or conceal any suspension movement is prohibited. Normally, this includes springs, shocks, spring washers, grommets, etc. Approved torsion bars are not considered suspension.

8.6. Driver Position

When normally positioned on the Kart for racing competition, the entire driver shall be within the specified width and length dimensions of the Kart.

8.7. Floor Pans

The floor pan shall be of a design that will prevent any portion of the driver's body from passing between Kart components. The floor pan shall be of metallic construction.

8.8. Steering Linkage Mechanisms

All steering linkage must be of the direct, mechanical type.

All steering assembly fasteners must be either cotter-pinned, safety wired, secured by snap rings, or utilize self-locking nuts in original condition.

All bolts shall be at least Grade 5 or US Mark 3 of a minimum of 0.250" diameter (6 mm).

All rod ends must be universal type swivel joints.

8.9. Steering Shafts

Tiller/vertical shaft steering mechanisms are not allowed.

Solid shafts must be 0.625” minimum diameter cold rolled steel of one-piece design.

Hollow shafts must be 0.700” minimum OD steel tubing of one piece design, 0.070” minimum wall thickness, with a minimum 5/16” (8 mm) diameter fastener at the base.

8.10. Steering Wheels and Hubs

On solid shaft systems, the steering hub must be secured with a quality nut or cap screw in an axial position with the centerline of the shaft.

On hollow shaft systems, the one-piece steering hub will be secured with a minimum 1/4"" diameter Grade 5 or US Mark 3, or 6 mm bolt and nut, perpendicular to the longitudinal centerline of the shaft.

It is recommended that the unthreaded portion of this bolt be long enough to clear both the shaft and the hub utilizing a washer(s), if necessary, to enable proper tightening.

Welding of the steering wheel to the hub is NOT allowed.

Welding the steering wheel hub to the shaft is NOT allowed.

No shaft extensions are allowed.

Minimum steering wheel outer diameter is 10” (25.4 cm).

The steering wheel must have a minimum of three spokes.

8.11. Brake Systems

All Karts, at a minimum, must be equipped with a braking system that brakes the rear wheels.

Except for disc retention, fasteners related to the braking system must be secured with one of the following methods:

Single nut with cotter pin or safety wire

Double nuts

Snap rings

Self-locking nuts – metallic or plastic type, used only once.

Each fastener used for rear brake disc retention must be secured either by cotter pin, or safety wire, or snap ring(s), or utilize completely metallic locking nuts.

“Floating” front disc brake retention shall be as manufactured, or by self-locking nuts (metallic or plastic type), or by nuts that are cotter pinned, safety wired, or utilize snap rings.

Brake rotors shall have no cracks or major chips.

Brake pads must be of sufficient area and thickness for proper braking for the duration of the event.

Front wheel brakes are required in F125, FC, ICC and FMX.

8.12. Front Wheel Retention

All front axle spindles that are manufactured to receive a cotter pin, safety wire or snap ring must have these items installed. Chassis that are CIK-FIA homologated/registered or meet CIK-FIA requirements can have a self-locking style retention nut in original condition.

8.13. Rear Axles

Rear axles must be of one-piece design.

For Formula A, Formula Super A, Formula C, ICA, ICA JR, ICC the following table lists the minimum cross sectional tube thickness at any point in a rear axle, except for key housings, or snap ring grooves at the outer extremities.

Rear Axle thickness according to outer diameter			
Maximum external diameter (mm)	Minimum thickness (mm)	Maximum external diameter (mm)	Minimum thickness (mm)
50	1.9	37	3.4
49	2.0	36	3.6
48	2.0	35	3.8
47	2.1	34	4.0
46	2.2	33	4.2
45	2.3	32	4.4
44	2.4	31	4.7
43	2.5	30	4.9
42	2.6	29	5.2
41	2.8	28	Full
40	2.9	27	Full
39	3.1	26	Full
38	3.2	25	Full

8.14. Wheel Hubs

Wheel hubs must be constructed of metallic materials.

Both rear hubs must be keyed properly to the rear axle.

8.15. Wheels

Maximum beading diameter is 5.0” (127 mm)

Maximum width of any front wheel is 135 mm

Maximum width of rear wheel in ICA JR is 185 mm

Maximum width of rear wheel in all other classes is 215 mm

For Formula A, Formula Super A, Formula C, ICA, ICA JR, ICC classes all wheels require CIK-FIA approved bead retention, except for wet rims. 3 pegs minimum.

8.16. Wheel and Axle Bearings

Bearings must be ground ball or roller type. Split race bearings are not permitted.

8.17. Wheel Balancing Weights

Weight of each balancing weight is not to exceed 0.25 oz.

8.18. Driver’s Seat

Only bucket type seats are permitted.

Seat must be of one-piece molded construction, with no add on sections.

Seat must be in good condition.

The seat must securely locate the driver laterally and longitudinally.

The seat must be bolted securely and rigidly in at least four places to the frame without using any damping devices and must not be adjustable while the kart is moving.

No portion of the seat may be located rearward of a plane projected vertically from the back if the rear axle.

Seat height requirements (top of seat) are as follows, measured from the ground:

Cadet/Novice:	10.0” (25 cm) minimum
Junior classes:	12.0” (30 cm) minimum
All others:	14.0” (35 cm) minimum

Shape and size of seats may be modified providing that the complete pattern area of all four final mounting locations are all located in the unaltered portion of the seat.

8.19. Front Bumper

There are two possibilities for Technical Inspection of front bumpers. All are to be inspected according to regulations 8.19.a) to e) or according to regulation 8.19.f).

If used on a chassis, 2003 CIK-FIA front bumpers must comply with regulation 8.19 f) in the Formula A, Formula Super A, Formula C, ICA, ICA JR, ICC classes. It is not mandatory to have 2003 CIK-FIA front bumpers on any 2003 or later chassis.

a) The Front bumper must be constructed from magnetic steel tubing. The minimum outer diameter of the tubing is 15 mm (0.590").

b) The front bumper on a CIK-FIA registered/homologated chassis must be CIK-FIA registered. It must be installed so that it will accept a CIK-FIA homologated nose cone without alteration of the nose cone, the chassis bumper support, or the bumper.

c) All front bumpers on chassis that are not CIK-FIA must be, at some point in the horizontal section of any of the frontal contact portion of the bumper, present when measured at 15 cm to 22 cm from the ground, as raced.

   It is acceptable to vary the height specified in the paragraph above provided that:

   The bumper is a CIK-FIA registered front bumper.

   The bumper will accept a CIK-FIA homologated nose cone without alteration of the nose cone or the bumper.

   The bumper utilizes the CIK-FIA method of affixation for the model of kart in question.

   Nose cones must not be fixed to the bumper with any form of reinforcement such as clamps, nuts/bolts, tie wraps, tape, wire, etc.

d) The front bumper must be mounted vertically above the chassis front member and attached to it in two places for CIK-FIA registered karts, and up to four places in non-CIK-FIA registered karts.

e) There shall be front and lateral protection. The bumper must not project beyond a line drawn through the outside of the front and rear wheels at hub height, with the front wheels in the straight-ahead position.

f) **CIK-FIA Front Bumper (2003)**

   The front bumper must consist of at least 2 steel elements.

   A steel upper bar with a minimum diameter of 16 mm and a steel lower bar with a minimum diameter of 20 mm, both bars being connected together.

   These 2 elements must be independent from the attachment of the pedals.

   The front bumper must permit the attachment of the mandatory front fairing.

It must be attached to the chassis-frame by 4 points.

Front overhang: 350 mm minimum.

Width of the lower bar: straight and 300 mm minimum in relation to the longitudinal axis of the kart.

The attachments of the lower bar must be parallel (in both horizontal and vertical planes) to the axis of the chassis and permit a fitting (system of attachment to the chassis-frame) of 50 mm of the bumpers; they must be 450 mm apart and centered in relation to the longitudinal axis of the kart at a height of 90 +/- 20 mm from the ground.

Width of the upper bar: straight and 400 mm minimum in relation to the longitudinal axis of the kart.

Height of the upper bar: 200 mm minimum and 250 mm maximum from the ground.

The attachments of the upper bar must be 550 mm apart and centered in relation to the longitudinal axis of the kart.

8.20. ASN Rear Bumper

Rear bumper must be constructed of minimum 0.750" diameter steel tubing.

The maximum height of the bumper is 7.500" above the ground, as raced.

The minimum height must be no lower than the rear axle.

The maximum width must be less than the width of the kart as measured at the outer limits of the rear tire assemblage.

The minimum width must be not less than the lateral width of the main frame rails.

A lower straight bumper bar of similar diameter must be mounted using the normal rear bumper attachment bolts, where such bolts are utilized. The lower bumper bar must in all cases perform as a true bumper, and also be capable of keeping a nose cone and/or front bumper from going under the bumper and lifting the Kart on contact during deceleration.

8.21. CIK-FIA Rear Bumper

There are two possibilities for Technical Inspection of CIK-FIA rear bumpers. All are to be inspected according to regulations 8.21.a) to c) or according to regulations 8.21.d) and e).

If used on a chassis, 2003 CIK-FIA front bumpers must comply with regulation 8.21.d) and e) in the Formula A, Formula Super A, Formula C, ICA, ICA JR, ICC classes. It is not mandatory to have 2003 CIK-FIA rear bumpers on any 2003 or later chassis.

a) Only CIK-FIA registered rear bumpers are allowed.

b) The top bar of the steel bumper must have a minimum outer diameter of 19 mm, or equivalent section, located a minimum of 20 cm. from the ground, as raced. It must be affixed to the frame in at least two points.

c) The lower, straight, steel bar must have a minimum outer diameter of 15 mm, or equivalent section, and must perform as a true bumper, capable of keeping a nose cone or other bumper from going under it. It must be located at the same height from the ground as the centers of the frame rails, and be affixed in at least two places to the Kart.

d) **CIK-FIA Rear Bumper (2003)**

Composed as a minimum of an anti-interlocking bar with a minimum diameter of 16 mm and of a top bar with a minimum diameter of 16 mm. The whole unit must be fastened to the frame in at least 2 points (possibly by means of a flexible system) on the 2 main tubes of the chassis.

Height: the plane through the top of the front and rear wheels as a maximum; 200 mm from the ground as a minimum for the upper bar and 80 mm +/- 20 mm from the ground for the anti-interlocking bar.

Minimum width: 600 mm Rear overhang: 400 mm maximum

8.22. ASN Side Bumper Bars

Side bumper bars must be constructed of minimum 0.750” diameter steel tubing, and must be secured by a minimum 0.25” bolt.

The overall length of the side bumper bar shall be a minimum of 24.0”, measured from the backside of the side bumper bar closest to the rear tire, in a straight line to where it attaches to the kart at the front.

The rear portion of the side bumper bar may not protrude laterally beyond the rear tire.

Double-high side bumper bars are required.

8.23. CIK-FIA Side Bumper Bars

There are two possibilities for Technical Inspection of CIK-FIA side bumper bars. All are to be inspected according to regulations 8.23.a) to c) or according to regulation 8.23.d).

If used on a chassis, 2003 CIK-FIA front bumpers must comply with regulation 8.23.d) in the Formula A, Formula Super A, Formula C, ICA, ICA JR, ICC classes. It is not mandatory to have 2003 CIK-FIA side bumper bars on any 2003 or later chassis.

a) Height from the ground must not exceed that of the rear axle.

b) Bars must have a minimum diameter of 15 mm.

c) The bars must cover at least two thirds of the width of the rear tires.

d) **CIK-FIA Side Bumper Bars (2003)**

They must be composed of an upper bar and of a lower bar.

They must allow the attachment of the mandatory side bodywork.

They must have a diameter of 20 mm.

They must be attached to the chassis-frame by 2 points.

These 2 attachments must be parallel to the ground and perpendicular to the axis of the chassis; they must allow a fitting (system of attachment to the chassis-frame) of the bumpers of 50 mm minimum, and they must be 500 mm apart.

Minimum straight length of the bars;

400 mm for the lower bar

300 mm for the upper bar

Height of the upper bar: minimum 160 mm from the ground.

Their external width must be in relation to the longitudinal axis of the kart;

500 +/- 20 mm for the lower bar

500 +100/-20 mm for the upper bar.

8.24. Ballast Weight Mounting

Ballast weight must be securely attached to the Kart.

Mounting of ballast weight on bumpers or side bumper bars is not permitted.

Bolts must be used to secure the ballast weights.

Attaching bolts must be no less than 5/16” (8 mm) in diameter.

A minimum of one attaching bolt is required for each 5 pounds of weight added.

Attaching bolts must be securely fastened with one of the following methods:

Single nut with cotter pin or safety wire

Double nuts

Self-locking nuts – metallic or plastic type, used only once

Large area washers must be used in the attaching of weights to the seat of the Kart.

8.25. Fuel Tank and System

The fuel tank must be attached or secured to the primary structure/frame of the Kart.

The fuel tank must be located within the main frame rails beneath the steering shaft.

No pressurized fuel systems are allowed.

Only one fuel tank is permitted.

Fuel tanks must have a secure, leak-proof filler cap.

Fuel line length is limited to a length sufficient to connect the fuel tank to the carburetor or fuel pump.

Fuel line connecting points must be secured with suitable clamps or safety wire.

8.26. Clutches

Clutches are mandatory in all classes except F100 Senior, Formula A, Formula Super A and ICA.

The use of a “wet” type clutch is allowed only when the unit is sealed to prevent fluid leakage.

Clutches are permitted in Formula A, Formula Super A, Formula C, ICA, ICA JR, ICC.

Karts with outboard clutch mounting must have a third bearing support to contain the clutch in the event of crankshaft breakage.

All Karts with clutches must have a metal clutch guard.

Dry clutches are mandatory in all four-cycle classes.

8.27. Chain/Oil Guard

Chain driven Karts must be equipped with a robust chain/oil guard (see example on right).

The guard must be constructed of metal or plastic material, and securely mounted so as to not fall out of line with the chain.

The guard must extend around the axle drive sprocket to at least below the horizontal centerline of the sprocket, and must cover the chain as viewed from directly above.

Loosely mounted flimsy guards tied to the chassis will not be accepted.

A chain/oil guard which is not in its proper position during a race may cause the entrant to be given a mechanical defect flag, at the discretion of the Clerk of the Course and/or the Race Steward.

If a chain/oil guard is noticed to be improperly positioned, or is improperly fastened, on a Kart other than during a race, the entrant will not be allowed to compete until it is repaired.

8.28. Chain Oilers

Chain oilers are not permitted.

8.29. Changing Ratios

Transmission, gearbox, differential, torque converter or other device that permit a change of drive ratio while the vehicle is in motion is not permitted, unless otherwise specified.

8.30. Competition Numbers and Number Panels

All competitors must use a YELLOW number panel and solid black numbers.

In each class each kart must have a unique number with a maximum of two digits (0 – 99) made up of numerals (1, 2, 3 etc.) only. No letters (A, B, C etc.) will be allowed.

Each numerical digit must be at least 6-inches (15 cm) high with a 1 inch (2.5 cm) stroke.

Four number panels with numbers must be displayed on each kart. One located at the front/center of the kart, the numbers visible from the front, either mounted on the front bumper or the steering column fairing.

One located on each vertical side pod/panel, positioned as close as possible to the rear wheels. One located on the rear of the kart visible and readable, from a position behind the Kart.

8.31. Instrumentation and Communication

Definitions:

a) Data Acquisition: All systems with or without a memory, installed on a Kart, allowing the driver during or after an on track session to read, indicate, obtain, **or** register information.

b) Telemetry: Transmission of data between a moving Kart and an outside entity.

c) Electronic communication between the driver, kart and pit crew is not permitted while the kart is on the racing surface at any time during the event.

Any system of telemetry is forbidden for the entire event.

Beacons used only to trigger on-kart systems are not considered telemetry and may be used. They must be placed in a location as directed by the Race Officials.

Track strip sensing devices are not considered telemetry when used solely as a trigger for Official timing and scoring, and/or personal on-kart lap timing.

8.32. Throttle Return Spring

All karts must be equipped with a positive acting throttle return spring.

8.33. Seat Belts and Mirrors

Seat belts, rear view mirrors or driver restraint systems (seat belts) are prohibited.

8.34. Hand Controls

On application to ASN, permission may be given for the fitting of brake and throttle hand controls.

8.35. Transponder Mounting Location

The transponder must be mounted in a transponder mounting bracket **either on the outside back of the seat or** on a sidepod. **If mounted on a sidepod some** portion **must be** at least 12" rearward of the centerline of the top of the appropriate front spindle pivot bolt. There must be no carbon fiber or metal between the transponder and the track surface.

8.36. Driver's Name

It is recommended that the driver's name with the Canadian flag be on each side of the kart on the vertical portion of the side bodyworks. The height of the black letters of the driver's name and the flag shall be 3 cm minimum on a white background.

9. TIRES

9.1. Tire Specifications

ASN or ASN affiliated karting organization reserves the right to designate specific tires, with regard to manufacturer name, size, and manufacturer designation, etc.

Tires in competition and practice must be pneumatic, designed for racing applications only.

Radial tires are not permitted.

Maximum bead diameter is 5.0 inches.

Maximum outer diameter of all tires: Front 280 mm, Rear 300 mm.

Minimum outer diameter of all tires is 225 mm.

9.2. Tires For Use in Dry Track Conditions

a) **Formula A, Formula Super A, Formula C, ICA, ICA JR, ICC:**

For each entrant in a class, only one set of DRY tires, plus one tire, are to be used for qualifying and heat races. One additional set of tires, plus one tire, may be used for the pre-final and final.

If there are no heat races, each entrant may only use one set of tires, plus one tire, for qualifying, pre-final and final.

If there is no pre-final, but two finals, each entrant may only use one set of tires, plus one tire, for qualifying and the two finals.

Tires used must be CIK-FIA homologated unless specified otherwise in the Supplementary Regulations.

Any modification of a homologated tire is forbidden. Heating and/or cooling by any method or the treating of any tire with any chemical substance is forbidden.

b) **Other Classes:**

Only one set of four DRY tires is allowed.

If cut or damaged, a tire may be replaced with a used or scrubbed tire upon approval of the Technical Inspector.

The treating of any tire with any chemical substance is forbidden.

9.3. Tires For Use in Wet Track Conditions

a) **Formula A, Formula Super A, Formula C, ICA, ICA JR, ICC:**

If a Parc Fermé is used, either 6 or 12 WET tires are required to be held in the Parc Fermé before qualifying. Two sets of four WET tires, plus four spares (either front or rear), of the same make may be used for the event.

If there is no Parc Fermé, six WET tires are permitted to be used daily per entrant per class.

Tires used must be CIK-FIA homologated unless specified otherwise in the Supplementary Regulations.

b) **Other Classes:**

Only one set of four WET tires is permitted per entrant per class.

10. BODYWORK SPECIFICATIONS

There are two possibilities for Technical Inspection of bodywork. All are to be inspected according to regulations 10.1.a) and b), 10.2.a) to g), 10.3.a) to c), 10.4.a) and b), 10.5.a) to h) and 10.6 or according to regulations 10.2 h), 10.3 d), 10.4 c) and 10.5 i).

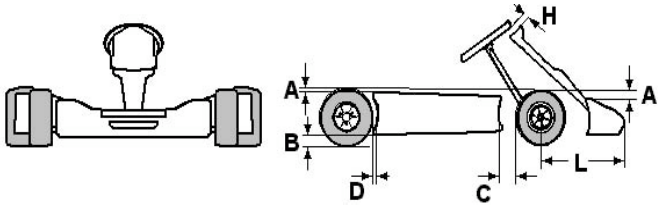
If used on a chassis, 2003 CIK-FIA Bodywork and Bumpers must comply with regulation 10.2.h), 10.3.d), 10.4.c), 10.5 i) in the Formula A, Formula Super A, Formula C, ICA, ICA JR, ICC classes. It is not mandatory to have 2003 CIK-FIA Bumpers and Bodywork on any 2003 or later chassis.

10.1. Bodywork Components and Usage

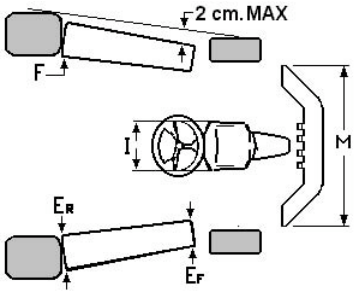
a) Bodywork components are defined as: Steering column fairing, full floor pan, nose cone, side pods/panels, and associated mounting brackets.

b) Formula A, Formula Super A, Formula C, ICA, ICA JR, ICC classes in non-International or International events require CIK-FIA registered body components.

10.2. General Bodywork Specifications



LEGEND	DIMENSION (cm)	LIMIT
A	4.0	Maximum
B (Driver on board)	2.5	Minimum
B (Driver on board)	4.0	Maximum
C and D	2.0	Minimum
C and D	5.0	Maximum
EF (Front)	12.0	Minimum
ER (Rear)	18.0	Minimum
F	0.5	Minimum
F	2.0	Maximum
H	5.0	Minimum
I	25.0	Maximum
L	60.0	Maximum
M	80.0	Maximum



a) All bodywork must be securely attached to the kart primary frame structure.

b) All bodywork must be neat in appearance and in good condition.

c) Body components may not be adjustable while the Kart is in motion.

d) The Kart must have a completely open cockpit, as viewed from directly above, so that the driver's torso, arms, legs, feet, etc. are visible.

e) Bodywork must accommodate applicable bumper and side bumper bar requirements.

f) Bodywork must be constructed of high strength plastics or woven fibreglass, and shall be shatterproof.

g) Sharp corners or edges are not permitted.

h) **CIK-FIA BODYWORK SPECIFICATIONS (2003)**

For all categories, it must be made up of two side bodyworks, one front fairing and one forward facing panel, with a possible rear bodywork (see technical drawing No. 2b).

The bodywork must be homologated by the CIK-FIA.

No element of the bodywork may be used as fuel tank or for the attachment of ballast.

No cutting of bodywork elements is allowed except for a hole in the side bodywork for an external starter in classes where permitted.

Materials:

Non-metallic; carbon fibre, Kevlar and glass fibre are forbidden, except in Superkart.

In all categories, if plastic is used, it must not be possible to splinter it and it shall not have any sharp angles as a result of a possible breakage.

10.3. Nose Cones

a) CIK-FIA registered, breakaway type nose cones, or an exact equivalent as accepted by the Technical **Delegate**, must be used by all competitors in all classes.

b) All classes must utilize CIK-FIA breakaway type mounting hardware.

c) Neither the CIK-FIA mounting hardware, nor the nose cone may be re-enforced to the bumper, or to each other, using any external or internal means.

d) **Front Fairing (2003)**

It may under no circumstances be located above the plane through the top of the front wheels.

It must not comprise any sharp edges.

Its minimum width is 1,000 mm and its maximum width is the external width of the front wheel/axle unit.

Maximum gap between the front wheels and the back of the fairing: 150 mm.

Front overhang: 650 mm maximum.

The fairing must comprise on its front side a vertical surface with a minimum height of 80 mm and a minimum length of 300 mm located immediately above the ground clearance.

The fairing must not be able to hold back water, gravel or any other substance.

10.4. Side Panels and Pods

a) In Formula A, Formula Super A, Formula C, ICA, ICA JR, ICC classes, side pods must not cut the plane through the top of the front and rear tires, nor extend beyond the plane through the outside of

the front and rear tires with the front wheels in the straight forward position. In this case, a device to avoid entrance of water is allowed, which must have a minimum ground clearance of 2.5 cm.

b) In all other classes, side pod or panels, when viewed from above, may extend laterally to a maximum of 2.5 cm. per side beyond the width of the rear tire assembly, provided that the overall width of the kart remains within the maximum allowed for the class. The side pods or panels must not cut the plane through the top of the front and rear tires. For side pods, in a wet race, a device to avoid entrance of water is allowed, which must have a minimum ground clearance of 2.5 cm.

c) **CIK-FIA Side Bodyworks (2003)**

They must under no circumstances be located either above the plane through the top of the front and rear tires 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”, side bodywork may not be located outside the plane passing through the outer edge of the rear wheels in the Formula A, Formula Super A, Formula C, ICA, ICA JR, ICC classes

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 40 mm.

They must have a ground clearance of 25 mm minimum and of 60 mm maximum.

The surface of the side bodyworks must be uniform and smooth; it must not comprise holes or cuttings other than those necessary for their attachment and, in ICA JR, for the passage of the external starter shaft.

Gap between the front of the side bodyworks and the front wheels: 150 mm maximum.

Gap between the back of the side bodyworks and the rear wheels: 60 mm maximum.

No part of the side bodyworks may cover any part of the Driver seated in his normal driving position.

The side bodyworks must not overlap the chassis-frame seen from underneath.

On their outer side they must comprise a vertical surface with a minimum height of 100 mm and a minimum length of 400 mm 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.

On their rear vertical surface close to the wheels there must be a space for competition numbers.

10.5. Steering Column Fairings

a) Front fairings in all classes must be CIK-FIA type, conforming to CIK-FIA specifications.

b) The steering column fairing must not extend above the horizontal plane through the top of the steering wheel.

c) There must be a gap of 5 cm minimum between the steering wheel and the fairing.

d) Maximum fairing width is 25 cm.

e) Must not protrude beyond the front bumper.

f) Must not impede the normal working of the pedals. -

g) Must not cover any part of the feet in the normal driving position.

h) Material(s) used in the fairing must be shatter and splinter resistant.

i) **CIK-FIA Front Panel (2003)**

It must not be located above the horizontal plane through the top of the steering wheel.

It must allow a gap of at least 50 mm between it and the steering wheel and it must not protrude beyond the front fairing.

It must neither impede the normal functioning of the pedals nor cover any part of the feet in the normal driving position.

Its width is 250 mm minimum and 300 mm maximum.

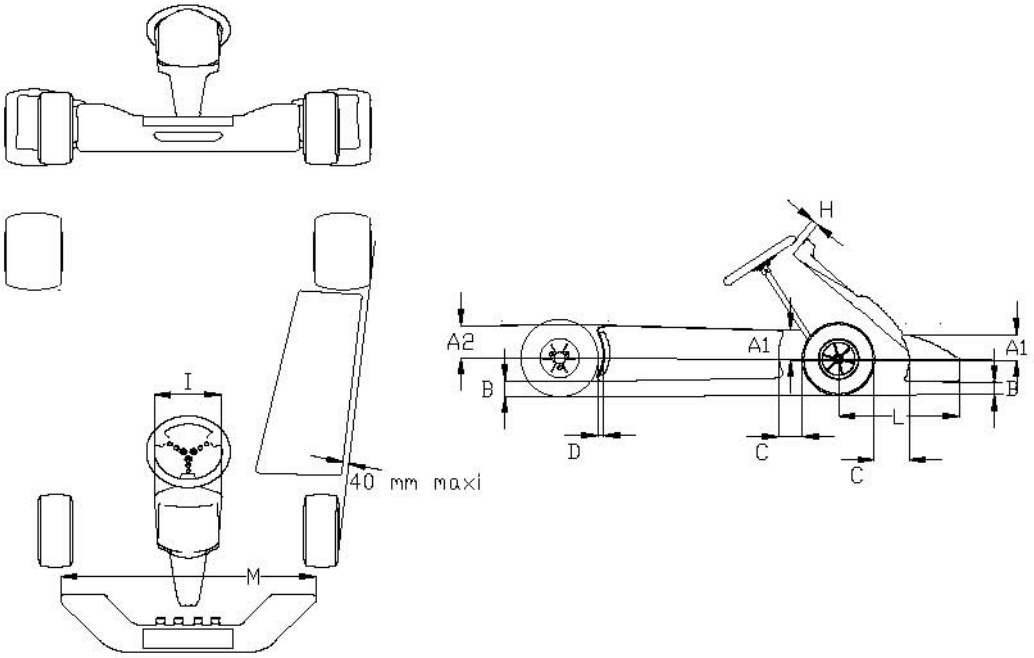
Its lower part must be solidly attached to the front part of the chassis-frame directly or indirectly. Its top part must be solidly attached to the steering column support with one or several independent bar(s).

A space for competition numbers must be provided for on the front panel.

10.6. ASN Belly Pan

A full floor or belly pan is allowed providing it is within the area inside the main frame rails, is no higher than the centre of the rear axle, and terminates at least 16" from the front of the rear axle.

10.7. CIK-FIA Bodywork Specifications (2003)



CODE	Cotes en mm / *Dimensions in mm*	Limite/*Limit*	Commentaires/*Comments*
A1	Inférieur au rayon de la roue avant *Less than the front wheel radius*		Avant / *Front*
A2	Inférieur au rayon de la roue arrière *Less than the front wheel radius*		Arrière / *Rear*
B	25 60	Minimum Maximum	Pilote à bord / *Driver on board* Pilote à bord / *Driver on board*
C	150	Maximum	
D	60	Maximum	
H	50	Minimum	
I	250 300	Minimum Maximum	
L	650	Maximum	
M	1000 Largeur extérieur du train avant *External width of the front track*	Minimum Maximum	

11. GENERAL TWO CYCLE RULES

All engines for two-cycle competition, other than F125, are engines designed specifically for kart racing.

All two-cycle engines must be stock or stock appearing, according to **the appropriate** class regulations.

No parts may be added to engines except for clutches and clutch guards, unless permitted in these Regulations.

For all water-cooled engines in all classes, the radiator must be entirely above the chassis frame. Maximum height from ground, as raced is 50 cm. Maximum distance ahead of rear axle is 55 cm.

11.1. Eligible Engines

a) **Formula A (FA):** CIK-FIA homologated, or have a remaining FMK homologation.

b) **Intercontinental A (ICA):** Water cooled or air cooled by natural air flow series production single cylinder engine with reed valve intake and without a gearbox, homologated by the CIK-FIA, and complying with these Technical Regulations.

c) **Formula 125 (F125):** Motocross (MX) engines.

Mass-produced single-cylinder.

Permitted 125 cc. engines are the Gilera, Honda CR, Kawasaki KX, Suzuki RM, tm MOTO, Yamaha YZ. Engines must be current model year or older (no prototypes or pre-production engines)

OR any engine accepted by the National Technical Delegate meeting the criteria for the class.

d) **Formula C (FC):** All rotary or reed valve engines homologated by CIK-FIA for Formula C, and those homologated by CIK-FIA for the ICC class (to become Super ICC).

e) **Formula Senior (ICC):** Engines homologated by the CIK-FIA for competition in the CIK-FIA ICC class.

f) **FMX:** Brands of engines eligible in the Formula 125 class, with specified technical limitations.

g) **Formula Junior:** Eligible engines are Honda CR, Yamaha YZ, Kawasaki KX, Suzuki RM, tm Moto.

h) **Intercontinental A Junior (ICA JR):** Engines must be **currently** CIK-FIA Homologated for the Intercontinental A Junior (ICA JR) class.

i) **Formula 100 (F100)**: Yamaha KT100S series.

11.2. Authorized Changes and Additions

a) **Intake Silencer:** ALL two-cycle classes require an approved air intake silencer. Must be registered by the CIK-FIA, and conform to CIK-FIA specifications, dependent upon each class regulation.

Pre 2004:

2 tube: 23 mm max. x 95 mm min. each

2 tube: 29 mm max. x 99.8 mm min. each

3 tube: 23 mm max. x 95 mm min. each

2004:

As per 2004 CIK-FIA homologation.

b) **Air Filters:** The use of an external air filter on the silencer is permitted, providing that it conforms to specifications listed in these Regulations.

c) **Clutch:** Engines may be fitted with an operational clutch that will allow the engine to idle without moving the Kart. Refer to the appropriate regulations to verify the permitted clutch use.

Some classes permit only certain types of clutches and some classes have clutch engagement specifications.

The clutch must be an engine mounted, centrifugal type, of the “wet” or “dry” type.

No axle clutches are permitted except Formula A, Formula Super A and ICA.

All clutches must have an engine mounted clutch guard.

d) **Direct Drive:** F100 Senior, ICA, Formula A and Formula Super A permit Direct Drive.

e) **Fasteners:** Any bolt-hole, with certain exemptions in stock classes, may be re-threaded and/or fitted with a helicoil or thread insert. Any bolt may be replaced with a stud or socket head cap screw.

f) **Ignition Kill Switch:** An ignition switch may be installed on the engine, and may be required in some classes. The switch must be installed on the steering wheel or on a “dash panel” with easy access to the driver.

g) **Paint/Coatings:** Only the engine head may be painted or coated. No exhaust system painting or coating is allowed.

12. INTERCONTINENTAL A (ICA) CLASS PREPARATION

a) **Engine:** Water-cooled or air-cooled by natural air flow.

Single-cylinder engine without a gearbox.

Engine must be CIK-FIA homologated for Intercontinental A.

b) **Displacement:** 100.00 cc maximum.

c) **Power valve:** Power valves are not allowed.

d) **Induction system:** Reed valve system only.

1 carburetor only, air aspirated, must be CIK-FIA homologated butterfly type with central shaft, round with a maximum venturi of 24 mm at any point, and a maximum outlet diameter of 28 mm (+0/-2) at any point.

e) **Stroke:** 48.5 mm minimum, 54.5 mm maximum.

f) **Exhaust open angle:** 177 degrees maximum, utilizing 0.2 mm feeler gauge.

g) **Transfer ports**: Three.

h) **Ignition system:** As homologated by CIK-FIA.

i) **Exhaust:** System must be CIK-FIA homologated, with the pipe having at least two lugs for sealing and retention purposes, and being stamped with the CIK-FIA homologation number.

j) **Minimum weight:** Kart alone without fuel 65 kg.

k) **Minimum Total weight**: 150 kg.

l) **Bodywork:** CIK-FIA homologated lateral bodywork and front fairing are mandatory.

m) **Intake silencer:** CIK-FIA registered air intake silencer is mandatory.

13. SHIFTER CLASSES ENGINE PREPARATION

The Shifter Kart Regulations are divided into **4** sections. Each type has its own defined Regulation, listed further below.

Formula 125 (F125)

Formula Senior (ICC)

FMX

Formula Junior

The regulations that follow are for individual classes only, not combinations.

13.1. FORMULA 125 (F125)

a) **Displacement:** Maximum displacement permitted is 125.000 cc.

b) **Shifting Mechanism:** Must be manually operated. Operation that is in any way assisted by any pneumatic, hydraulic, electric or other device is prohibited.

c) **Power Valves:** Operating power valves are not allowed.

d) **Induction:** Rotary valve induction is not permitted. Only reed, piston port, and case-reed engines are permitted.

e) **Coolant:** Only water and anti-corrosion additives are to be used in the cooling system. ANTI-FREEZE IS NOT PERMITTED. The radiator must have a non-glass overflow catch bottle.

f) **Water Pump:** Only one water pump may be used, and it shall be OEM engine mounted.

g) **Reed(s):** Reed(s) and/or reed cage, where applicable, are not subject to Technical Inspection.

h) **Ignition**: Stock, OEM stators and rotors may be used. Programmable ignition boxes or OEM ignition boxes may only be used in conjunction with the stock OEM stator and rotor.

The PVL 105 458 series CIK homologated rotor, coil, and stator ignition package with fixed ignition curve may be used.

Stator position must NOT be adjustable while the engine is running.

Only ONE ignition curve may be available on the Kart, to the engine, at any given time. No ignition switches allowed.

Any device that temporarily interrupts the ignition system is not allowed.

NO sensing devices used to monitor rear axle rotational speed are allowed.

ALL portions, devices or apparatus pertaining to the ignition system must be acceptable to the Technical Director for the event.

i) **Head and Cylinder:** Not subject to Technical Inspection, but adding or deleting ports is not permitted.

GP or aftermarket heads and cylinders are not allowed.

j) **Piston:** Not subject to Technical Inspection.

k) **Crankshaft and Rod:** Must be OEM, no modifications, except that the diameter of the main bearing journals may be decreased to allow a slip fit into the main bearings.

l) **Carburetor and Mount:** Only one (1), single venturi, float type carburetor may be used.

All induction systems must be normally aspirated.

Carburetor venturi size is not subject to Technical Inspection.

Carburetor must have a non-glass overflow catch bottle.

Intake manifold is not subject to Technical Inspection.

Machining of engine block to shorten intake tract length is prohibited.

On some engines, machining the kick starter boss is allowed in order to use the straight intake manifold. The original boss must still be identifiable as present.

m) **Clutch:** Must be OEM wet clutch configuration.

Plates, linings, and springs are not subject to Technical Inspection.

n) **Transmission:** Must be OEM for engine used and have no more than six (6) forward ratios.

The transmission shall have a non-glass overflow catch bottle.

o) **Exhaust System:** All silencers must be in the original manufacturer's condition.

The only exhaust silencers allowed are those that are accepted by the Technical Director for the event.

The silencer is to be mounted transversely behind the engine, relatively parallel to and inside the rear bumper and frame rails.

Lengthening, bending, or altering the stinger tube is permitted to establish proper silencer mounting.

13.2. Formula Senior (ICC)

2004 CIK-FIA Homologated engines are allowed in competition. All parts and engines must be within the 2004 CIK-FIA Homologation specifications.

1998 AND 2001 HOMOLOGATED ICC MOTORS FOR 2002

ENGINES WITH ASTERISKS ARE 1998 HOMOLOGATED

MARQUE	MODEL	BORE	MAX.	STROKE	ROD	EXHAUST OPEN
*CASSANI	E	54.00	54.09	54.40	110	194
CRK	L1	54.00	54.05	54.50	113	195
*CRS	125 MF 2	54.00	54.04	54.50	108	193
CRS	S 88	53.98	54.05	54.50	108	194
*ITALSISTEM	SEVEN	54.00	54.09	54.40	110	197
*KZH	ICC 98	54.00	54.04	54.50	110	193
MOTORI BALEN	R1	54.00	54.08	54.40	110	193
MC	BAT-3	54.00	54.09	54.40	110	194 max.
*PAVESI	LAMELLARE 98	54.00	54.09	54.45	110	195
PAVESI	L2001	54.00	54.09	54.45	110	195
*POWER	K6L	54.00	54.30	54.00	110	194
SEVEN	L2	54.00	54.09	54.40	110	194.5
*SGM	L198	54.00	54.08	54.40	113	195
*TM	K8	54.00	54.08	54.43	109.8	193
TM	K9	54.00	54.08	54.43	109.8	193
VM	125 M 01	53.99	54.03	54.50	110	196
*VORTEX	VL/125	54.00	54.035	54.50	110	196

MANDATORY ICC GEAR RATIOS:

Marque	Model	Primary	1st	2nd	3rd	4th	5th	6th
*CASSANI	E	22/82	13/29	16/25	20/26	22/24	28/26	29/24
CRK	L1	17/56	12/35	15/32	16/27	20/28	20/24	18/19
*CRS	125 MF 2	19/73	15/31	18/27	21/25	23/23	24/21	26/20
CRS	S 88	18/73	15/32	17/26	21/26	23/24	28/25	31/24
*ITALSISTEM	SEVEN	20/68	13/32	16/28	18/26	20/24	22/23	23/21
* KZH	ICC 98	21/76	17/48	21/44	24/41	27/38	30/36	32/34
MOTORI BALEN	R1	18/68	13/33	16/30	18/28	20/26	22/24	32/22

MC	BAT-3	17/61	12/36	14/26	15/23	19/24	24/26	20/19
*PAVESI	LAMELLARE 98	18/75	15/32	19/29	21/26	23/24	25/22	27/21
PAVESI	L2001	18/75	15/32	19/29	21/26	23/24	25/22	27/21
*POWER	K6L	19/75	15/31	19/27	21/25	23/23	24/21	26/20
SEVEN	L2	20/73	13/32	16/29	16/24	18/22	22/23	25/23
*SGM	L198	18/67	14/34	15/28	19/30	21/28	23/26	24/24
*TM	K8	19/75	13/33	16/29	18/27	22/27	22/23	27/25
TM	K9	19/75	13/33	16/29	18/27	22/27	22/23	27/25
VM	125 M 01	19/75	13/33	16/29	18/27	22/27	25/27	31/29
*VORTEX	VL/125	15/59	13/33	15/28	16/24	19/24	24/26	23/22

Gear Ratios in degrees of engine rotation:

ENGINES WITH ASTERISKS ARE 1998 HOMOLOGATED

		1 st	**2 nd**	**3 rd**	**4th**	**5th**	**6th**
*CASSANI	E	130	185	223	265	312	350
CRK	L 1	112.5	153.5	194.5	234	273	310.5
*CRS	125 MF 2	136	187.4	236	281	321.3	365.4
CRS S88		124.6	174	215	255	298.25	343.8
*HRT	125 / L	116.5	156	187.5	219	246.5	278.5
*ITALSISTEM	SEVEN	129	182	220	264	304	348
*KZH	125 ICC 98	105.8	142.4	174.7	211.7	248.8	281.2
MC	BAT - 3	101	162	196	238	278	317
MOTORI BALEN	R1	112	152	183	220	262	299
*PAVESILAMELLARE98		121.5	170	209.5	248.5	295	333
PAVESI	L 2001	121.5	170	209.5	248.5	295	333
*POWER	K6L	137.5	193.5	231	274	313	356
SEVEN	L 2	120	163	197	242	283	322
SGM	L 198	112.5	153.5	194.5	234	273	310.5
*SGM	L 198	120	156	184	218	257	290
*TM	K 8	107	150	182	222	261	295
TM	K 9	107	150	182	222	261	295
VM	125 M 01	107.8	151	182.4	222.9	253.3	292.5
VORTEX	VL/125	108.1	147.1	183	217.3	253.3	287

a) **General:** The method used to attach the ignition system, the carburetor, the clutch, the exhaust, or the engine itself is non-tech provided that the homologated position of those parts are not modified.

Certain components and surface finishes of the engine are stock appearing and may be modified from stock.

b) **Bore:** Bore cannot be greater than the maximum homologated limit.

c) **Carburetion:** Dell'Orto VHSH 30 only.

The carburetor must remain original. The only settings allowed may be made to the slide, the needle, the needle shaft, the floats, the jets, and the needle kit.

All exchanged parts must be original Dell'Orto.

The gas filter may be removed. If it remains, it must be original.

Only one carburetor is allowed.

The diameter of the choke may not be altered.

Maximum venturi bore **30.06** mm - no tolerance.

d) **Combustion chamber volume:** Minimum combustion chamber volume is 13.4 cc as measured to the top of the LAD CCV measuring tool.

e) **Connecting Rod centerline:** Connecting rod centerline may not be altered.

f) **Exhaust open angle:** 199 degrees MAXIMUM - no tolerance.

g) Exhaust system: Must be CIK homologated **for the engine used.**

h) **External Characteristics:** The original parts of the homologated engine must always comply with and be similar to the photographs, drawings and physical specified measurements described on the homologation form.

i) **Induction system:** Only reed valve intake systems are authorized.

j) **Ignition:** Must be the appropriate homologated system by the CIK-FIA for the engine.

k) **Gearbox:** All ratios must remain the same as the CIK-FIA homologation with a minimum of 3 ratios and a maximum of 6 ratios. Mechanical gearbox control only, without assist.

l) **Spark Plug:** The **main body** of the spark plug must not extend into the dome of the combustion chamber.

m) **Stroke:** Cannot be greater than homologated measurement.

n) **Ports:** The number of transfer and inlet ports/ducts in the cylinder and/or crankcase may not be changed (5).

Number of exhaust ports/ducts cannot be changed (3).

13.3. FMX

a) **General:** Engine packages eligible for F125 are also eligible for FMX, except for the following specifications.

b) **Combustion chamber volume:** 10.5 cc. Minimum LAD.

c) **Ignition:** Control box must be the approved model for the SKUSA FMX class, or the OEM control box for the engine make.

"No lift shift " is not allowed.

By the Technical Inspector, any component (or portion of a component) of a competitor's ignition system may be altered, or exchanged for another component designed for that marque of engine, year of manufacture of engine or control box NOT noted or differentiated.

d) **Carburetor:** 38.6 mm. Maximum venturi bore.

13.4. FORMULA JUNIOR

a) **General:** Mass-produced, single-cylinder Motocross motorcycle engines of the current year's production or older.

b) **Base Gasket**: OPEN

c) **Carburetor:** One single venturi barrel, float type carburetor.

Maximum bore 28.6 mm.

Twin pump recirculating systems are allowed.

d) **Combustion chamber volume**: Minimum of 7.8 cc LAD.

e) **Clutch** - OEM wet clutch must be used.

Manual, direct connection operation only.

f) **Cooling:** Liquid or air cooled.

Only water and anti-corrosion additives are to be used in the cooling system. ANTI-FREEZE IS NOT PERMITTED.

The radiator must have a non-glass overflow catch bottle.

Only one water pump may be used, and it must be OEM.

g) **Cylinder**: OEM.

h) **Crankshaft and Rod assembly:** OEM except for clearancing main bearing journals to allow a bearing slip fit.

i) **Displacement:** The maximum bore and stroke allowed will be determined by the factory specifications for each motor, and shall not exceed 85.00 cc.

j) **Exhaust:** All silencers must be in the original manufacturers condition.

The only exhaust silencers allowed are those that are accepted by the Technical Director of the event.

The silencer is to be mounted transversely behind the engine, relatively parallel to the and inside the rear bumper and frame rails.

Lengthening, bending, or altering the stinger tube is permitted to establish proper silencer mounting.

k) **Head:** Modifications are allowed, but a readily identifiable portion of the head must have been originally produced by the OEM of the engine.

l) **Ignition:** Flywheel, stator and coil must be OEM.

Ignition Control Box may be aftermarket, subject to the following:

Must be commercially available for a minimum of thirty days prior to the event in question.

Must not control or be controlled by any other vehicle operation parameter.

Direct connections to the ignition control box are limited to those supplied on the original, manufacturer's wiring harness.

The ignition mapping switch, if so equipped, must be located in such a manner as to not provide any means of driver access while driving.

m) **Induction system:** Piston port or reed valve only.

Normally aspirated, no turbo or super charging.

Reed cage and manifold are non-tech items.

n) **Piston and ring(s):** Not subject to Technical Inspection.

o) **Porting:** The number of ports cannot be altered from stock, but machining of the existing ports is allowed.

p) **Transmission:** For each manufacturer, original MOTO ratios must be used. Gears must be OEM, except that third and fourth gears may be replaced with aftermarket gears of the original ratio.

Mechanical gearbox control only, without assist.

14. INTERCONTINENTAL A JUNIOR (ICA JR) CLASS PREPARATION

14.1. General ICA JR Engine Specifications

a) **Engine:** A production engine, single cylinder, air cooled by natural flow, without gearbox.

Homologated by the CIK-FIA.

All power valve systems are forbidden.

b) **Displacement :** Maximum displacement: 100 cc.

c) **Inlet:** Only Piston Ported engines are allowed.

d) **Inlet Tract Length:** The minimum length between the cylinder centreline and the centreline of the carburetor mounting surface is 91.00 mm (3.582").

e) **Liner:** Cylinder to have an iron liner. Chrome and nicasil are forbidden.

f) **Piston:** Dimensions vary, must be the same as on the homologation form.

g) **Stroke:** 46.0 mm minimum - 54.5 mm maximum.

h) **Exhaust Port(s):** The shape of the exhaust port(s) must be basically rectangular.

i) **Transfer Ports:** The number of transfer ports is not subject to Technical Inspection.

j) **Maximum Inlet Port Width (See Chart A):** The total width of the inlet port, measured chordally, must not exceed 22.3 per cent of the total internal circumference of the cylinder established by the Bore stated on the CIK-FIA homologation form for the engine.

k) **Maximum Exhaust Port Width (See Chart A):** The total width of the exhaust port(s), measured chordally, must not exceed 22.3 per cent of the total internal circumference of the cylinder established by the Bore stated on the CIK-FIA homologation Form. If there are two ports, the width of the division between them shall be subtracted from the chord measurement before the percent calculation.

l) **Inlet Port Open Angle:** The inlet open angle to comply with the homologation for each engine as displayed on Chart B.

m) **Exhaust Port Open Angle:** The exhaust open angle to comply with the homologation for each engine as displayed on Chart B.

n) **Induction:** CIK-FIA homologated butterfly type, with a centre spindle and **round with** a maximum venturi diameter of 24 mm, tolerance included.

It is allowed to add a duct with an internal Ø of 3.25 mm maximum to the main body of the fuel pump, in order to permit the connection of the carburetor to the engine crankcase pressure duct.

The distance between the rear side of the carburetor and the centre line of the cylinder must not be less than 91 mm (measured in accordance with the criteria defined by the CIK-FIA). The a (Alpha) and b (Beta) angles defining the 91 mm may not be modified.

The pressure duct in the crankcase must have a maximum internal diameter of 3.25 mm.

All systems of injection are forbidden. All spraying of products other than fuel are forbidden.

o) **Ignition:** Make and model of ignition to be listed on the homologation form for the engine.

Ignition systems must have fixed, invariable timing.

Ignition kill switch is mandatory, and must be mounted on the lower part of the steering wheel.

p) **Exhaust:** Homologated CIK-FIA exhaust pipe, one per engine model.

Exhaust pipe to include two «lugs» for sealing and to bear the CIK-FIA homologation number.

The sheet metal thickness must be 0.75 mm minimum and the weight of the exhaust pipe may not be less than 90% of the weight homologated during homologations carried out before 2000.

q) **Clutch:** A CIK-FIA homologated dry centrifugal clutch is mandatory.

The starter system must be electric and may be on board.

The clutch must move the kart with the driver aboard at or below 5000 RPM.

A clutch guard made of cast aluminum covering the clutch but leaving free access to the chain or belt must be fitted.

r) **Intake Silencer:** CIK-FIA registered intake silencer is mandatory.

s) **Modifications:** It must always be possible to identify the original parts of the homologated engine.

External characteristics of the fitted engine (possible modification of the external appearance of the engine must be applied for as an homologation extension.) Modification of the external appearance of an engine does not include carburetor, ignition, exhaust, clutch or engine fixings.

t) **Internal Parts that CANNOT be modified**: Stroke.

Bore (outside the maximum limits).

Number of transfer passages and inlet ports in the cylinder and crankcase.

Number of exhaust ports and passages. Creation of new exhaust ports or passages is forbidden.

All restrictions in this section of the Regulations.

u) **External parts that CANNOT be modified:** Number of carburetors and diameter of choke.

v) **Squish:** The distance between the piston and cylinder head must be 1.2 mm as a minimum at all points.

w) **Spark Plug:** The make is free.

The thread of the spark plug, tightened on the cylinder head, must not extend beyond the upper part of the dome of the combustion chamber. Dimensions - length: 18.5 mm; pitch: M 14 x 1.25.

x) **Combustion Chamber Volume**: 14.4 cc LAD minimum.

14.2. General ICA JR Kart Specifications

a) **Body Work:** Lateral bodywork and front fairings must be CIK-FIA homologated, and are obligatory.

b) **Kart Weight:** Without fuel: minimum 65 kg (143 lbs.)

c) **Minimum Total Weight:** As raced (including driver): 135 kg (298 lbs.)

d) **Wheels and Tires:**

Maximum width of each rear tire assembly is 185 mm (7.283”)

Maximum width of each front tire assembly is 135 mm (5.314”)

Maximum diameter of front tires is 280 mm.

Maximum diameter of rear tires is 300 mm.

Maximum diameter of the beading portion of the rims is 5”.

Wheels must comply with CIK-FIA Standardization Regulations.

14.3. Chart A - Maximum Inlet/Exhaust Port Width ICA JR

The listed Bores are Standard Bores. Larger bores, up to the CIK-FIA maximums, require re-calculation. This chart is meant as a guide only. If an entrant does not comply, then another measurement and calculation are required.

Engine:	Standard Bore	Max. Inlet/Exhaust Port Width	Max. Inlet/Exhaust Port Width
Rotax R-100 PP-E:	49.60 mm	34.748 mm	1.368”
CRG SP97:	50.00 mm	35.028 mm	1.379”
Comer MIK P51:	50.00 mm	35.028 mm	1.379”
Dino M 11:	50.00 mm	35.028 mm	1.379”
Stark FR01 PP:	50.00 mm	35.028 mm	1.379”
KZH-100 J 98:	50.30 mm	35.239 mm	1.387”
Parilla PV 100 Super:	49.86 mm	34.930 mm	1.375”
Parilla PV 100 Swift:	52.40 mm	36.710 mm	1.445”
Italsistem MA31:	49.90 mm	34.958 mm	1.376”
PCR PV98 PP:	50.00 mm	35.028 mm	1.379”
Vortex VA / C:	50.80 mm	35.589 mm	1.401”
Vortex VA / B:	50.00 mm	35.028 mm	1.379”

14.4. Chart B - Maximum Inlet and Exhaust Port Open Angles ICA JR

Engine:	Standard Stroke	Homologated Inlet Angle (degrees)	Homologated Exhaust Angle (degrees)
Rotax R-100 PP-E:	51.50 mm	160.50	172.60
CRG SP97:	50.50 mm	160.40	172.40
Comer MIK P51:	50.50 mm	160.40	172.40
Dino M 11:	50.00 mm	160.80	172.80
Stark FR01 PP:	50.25 mm	160.30	170.30
KZH-100 J 98:	49.94 mm	160.80	172.80
Parilla PV 100 Super:	50.70 mm	160.24	172.24
Parilla PV 100 Swift:	46.00 mm	164.00	176.00
Italsistem MA31:	50.65 mm	160.20	172.20
PCR PV98 PP:	50.50 mm	160.50	172.60
Vortex VA / C:	49.00 mm	161.20	173.80
Vortex VA / B:	50.50 mm	160.50	172.60

14.5. Measuring ICA JR Port Widths

The total width of exhaust or inlet ports permitted is defined as a maximum of 22.3% of the circumference of the bore.

Determine the bore, and multiply by 3.1416 to determine circumference.

Multiply the circumference by 0.223, the result being the maximum port width permitted.

Measure the port chordally for determination of eligibility.

In the case of a port "web", measure the width of the web, and subtract it from the overall, actual chordal measurement.

15. TWO-CYCLE TECHNICAL INSPECTION

Formula A, Formula Super A, Formula C, ICA, ICA JR, ICC will have engines inspected exactly according to these Regulations.

F125 class will be inspected as conforming to the rules included herein. The OEM engine workshop manual will be used as a guide for the specifications and measurements of F125 motocross engines and/or any relevant CIK-FIA homologation papers.

16. TWO CYCLE FUEL AND OIL REQUIREMENTS

16.1. Source and Communication

Two cycle classes are required to use fuel for their specific classes, purchased from a specific source, for each sanctioned event. Communication of source shall be by bulletin at registration on the day of the event, and/or by Supplementary Regulation for the event.

16.2. Fuels Required for Certain Classes

Event variance may occur if accepted by the Technical Inspector and the Clerk of the Course.

a) **F125:** GASOLINE and oil. Alcohol and oxidizers etc. are not permitted. Types, and/or brand names of fuel permitted shall be posted prior to practice sessions.

b) **Formula A, Formula Super A, Formula C, ICA, ICA JR, ICC:** Fuel shall be specified in the Supplementary Regulations for the event. Competitors may be required to purchase the specified fuel and oil at the track.

c) **All other Two-Cycle classes:** The usual acceptable fuel for these classes shall be HI-TEST, UNLEADED gasoline which must be purchased at a specified location.

The Technical Director for the event may allow other specified fuels, which must be listed at the event.

16.3. Lubricant Oils

The competitor's fuel is tested against a base related to a fuel/oil ratio of 16:1

Certain oils are recommended. They are:

Burris 50/50	Burris Castor	Shell M	Klotz two-cycle Super Techniplate
Blendzall Castor	Motul Oil	Elf Oil	

The chosen oil must be stated on the Competitor's entry form and declared by the competitor on the **Pre-Technical Inspection Self-Declaration** form or Technical Passport.

17. ROTAX MAX SENIOR, ROTAX MAX JUNIOR AND RM1

The Rotax Max Senior, Rotax Max Junior and **RM1** classes will be inspected according to the Rotax Max Challenge Regulations.

18. WORLD FORMULA SPECIFICATIONS

a) **Chassis**: According to ASN Canada FIA Technical Regulations 8.1.**b**

Front brakes are not permitted.

b) **Tires**: Specified ASN tire.

Maximum width of a fitted complete front wheel (rim and tire): 135 mm.

Maximum width of a fitted complete rear wheel (rim and tire): 185 mm.

c) **Engine**: The only engine eligible for this class is the CIK-FIA homologated Briggs and Stratton World Formula engine sourced only from ASN designated Briggs & Stratton Canadian World Formula dealers, and bearing the Briggs and Stratton Canada serial number stamped on the block and cylinder head.

The Briggs and Stratton World Formula engine is a purpose-built engine manufactured to a racing specification by Briggs and Stratton in the USA. The engine is homologated by the CIKFIA. Briggs and Stratton manufacturing is bound by the specifications of the homologation.

The engine assembly should be considered as if it were sealed. No modification of any kind is permitted to any part or component of the engine other than those modifications listed in these regulations.

In all other respects the engine must remain as delivered and according to the CIK-FIA Homologation papers and the ASN Canada FIA Karting Regulations.

d) **Dry Weather Operation**: The standard air filter, unaltered, must be used.

e) **Wet Weather Operation**: The fitting of an air box with or without the standard air filter is authorized provided that the box is not capable of providing an intake air ram effect.

f) **Carburetor Jetting**: The use of the Briggs and Stratton supplied World Formula Jet Kit is authorized. All jet components must remain unaltered.

g) **Fuel Supply System**: The B&S fuel pump must be used. The plumbing of the fuel lines is open.

h) **Catch Tank**: A catch tank must be fitted and the engine and fuel system fitted with plumbing in such a manner as to prevent oil and gas from spilling on the track.

i) **Engine Oil Level:** The level in the engine sump may be adjusted to minimize loss to the catch tank.

j) **Valve Cover Breather**: The original engine may not have been shipped with a breather tube. The fitting of a breather tube to a catch tank is **mandatory**.

k) **Engine RPM Limiter**: The B&S rev limiter must be fitted and functional at all times without modification.

l) **Clutch Springs**: The OEM engine is supplied with orange springs. The fitting of unaltered Premier yellow springs is authorized.

m) **Drive Sprockets**: The OEM 219 clutch drive sprocket may be replaced with a genuine Premier 35 pitch driver.

n) **Ignition Timing:** Modification of the flywheel key is not authorized.

o) **Cylinder Bore Size:** The specifications allow for increasing the bore size: +.010in; +.020in; +.030in.

p) **Block and Cylinder Head:** Modification of the cylinder head and block is not authorized, regardless of the chosen cylinder bore size.

q) **Cylinder Head Gasket:** Only the standard head gasket is authorized – unaltered.

r) **Combustion Chamber Size**: The combustion chamber volume specification is 25.0 cc. This is measured with the piston at top dead centre and filled to the top of the spark plug hole to the top of the machined chamfer.

s) **Header Pipe:** Wrapping of the header pipe with a non-asbestos material is authorized.

t) **Exhaust Muffler:** The only eligible muffler is the RLV World Formula Muffler Kit – Part number 5447S-K10. The kit consists of an RLV Muffler: 4110; Inner Pipe: 54475; and two springs.

u) **Starter and Battery:** The use of the starter is optional. If the starter is removed a protective metal plate must be installed to cover the opening in the engine shroud caused by removing the starter.

The installation of a battery is optional. If a battery is used it must not be a wet lead-acid battery. Only dry or gelsel batteries (sealed lead batteries) are permitted.

v) **B&S OEM Engine Assembly:** SAE or metric fasteners are used in the manufacturing of the engine. In this regard, the engines must remain as delivered.

w) **Engine Sealing:** ASN, at this time, does not require sealing of the WF engine. Should a Region decide that sealing is desirable, the engines must first be inspected for conformance by an authorized Briggs and Stratton World Formula dealer. ASN will make available, durable and tamper-proof seals.

18.2. World Formula Junior Kit

ASN has available a non-intrusive kit that converts a WF engine for use in a Junior class. The kit consists of an engineered throttle-stop that goes inside the carburetor, a locking collar for the Walbro carburetor cap and a tech tool for verifying throttle opening.

18.3. Briggs & Stratton Performance Guide & Racing Log

Each participant must have a copy and be familiar with the contents of the Briggs & Stratton Performance Guide & Racing Log for the Briggs & Stratton World Formula Racing Engine available for download on the ASN web site (www.asncanada.com).

18.4. ASN Canada FIA National Championships and Sunoco Ron Fellows Karting Championship

ASN reserves the right to impound a complete engine or any part thereof at any time during an event. ASN may at its discretion provide a replacement engine or component thereof.

Upon inspection of the impounded part or engine should it be determined that modification of any kind has been made, the participant is subject to penalties that includes the possibility of exclusion and loss of accumulated points in the class championship and other such penalties and costs deemed appropriate by ASN.

This procedure is not subject to protest or appeal.

19. GENERAL HONDA FOUR CYCLE-ENGINE REGULATIONS

The Four-Cycle Technical Regulations provide for a uniform set of standards and procedures to establish the eligibility of the Honda engines used in an ASN sanctioned event.

These Regulations are intended to be a guide for Technical Inspectors, as well as providing assistance to commercial and private engine builders.

a) The following engines are homologated for competition:

Honda Original Equipment Manufacture: GX-120, GX-140, GX-160, GX-160/K-1, GX-160/T-1, GX-200

b) The only changes, additions, deletions or modifications allowed are contained in these Technical Regulations.

c) All engine parts must be standard, unaltered, genuine Honda parts, manufactured for the particular engine, unless otherwise stated in these Regulations.

d) Modification or machining of the engine block or any components is not permitted, unless otherwise stated in these Regulations.

e) Interchangeability of parts: Any part conforming to the Technical Regulations for a GX-160/K-1 can be interchanged with any part conforming to the Technical Regulations for a GX-160/T-1.

20. AUTHORIZED HONDA FOUR-CYCLE CHANGES AND ADDITIONS

20.1. Air Filters and Adapters

a) Stock Honda air filters and/or adaptors may not be modified to become air scoops or velocity stacks.

b) The stock Honda air filter and adapter may be replaced with any aftermarket air filter and adapter that conform to the following specifications.

c) All aftermarket air filter adaptors must be of one-piece design, and manufactured from billet or cast material. No welding is allowed anywhere on the adaptor.

d) No portion of the adaptor may extend beyond the face of the flanged mounting portion into the carburetor opening. The flange surface must be flat in its entirety except for minimal clearancing for the idle air bleed orifice and the main metering air bleed orifice if required.

e) The centerline of the adapter and the filter shall be perpendicular to the mounting face of the adaptor in their entirety.

f) The only holes allowed are the two mounting holes and the central normal air flow hole.

g) The maximum length of any aftermarket air filter adapter is 2.310”. This measurement does not include the one mandatory stock adaptor gasket.

h) An air filter adaptor gasket must be used. A single, original type, Honda GX air filter adaptor gasket for the appropriate engine, is the only gasket that can be used, but the minimum metal thickness is 0.090”

i) The filter may not be used as a tract lengthener, air flow diffuser, or air flow director, and must be approved by the Technical Inspector.

j) The maximum length of the entire filter and boot is 7.0” The cross section diameter of any portion of the filter assembly shall not exceed 4.0”. The length of the boot attachment shall not exceed 2.50” in length, as measured from its adaptor end to its termination inside the element chamber.

20.2. Clutch

a) All Honda engines must have an operational clutch that will allow the engine to idle without moving the Kart. The clutch must be an engine-mounted, centrifugal clutch, of the “dry” type, protected with an engine clutch guard.

20.3. Fasteners

a) Any bolt-hole except the rocker stud bolt holes may be re-threaded, and or fitted with a helicoil or thread insert.

b) Any bolt may be replaced with a stud or socket head cap screw. The throttle butterfly screw must remain STOCK.

20.4. Fittings

a) The addition of a fitting to accommodate the fuel pump pulse line is permitted, with the maximum hole in the block accepting a 1/8" pipe thread.

20.5. Fuel Pump and Mounting Bracket

a) Any vacuum operated fuel pump may be used.

There shall only be one continuous, unaltered piece of tubing connecting the fuel pump pulse fitting to the engine crankcase with a maximum inside diameter of 0.250".

It shall be of the minimum length required to reach the pulse opening and the fuel pump.

There shall be a maximum of 2 openings on the pulse side of the fuel pump.

One shall be used for the connection to the engine and the other as a pulse chamber vent. The diameter of this orifice must conform to the normal size for that manufacture of pump.

b) The fuel pump mounting apparatus must be **on one plane**, and be fastened to the engine using only 1 or 2 bolts, nuts, and/or normal/lock washers as fasteners. The mounting apparatus, or any material other than the bolts, shall have a maximum area of 25 square inches total. The area of any holes in the apparatus is not subtracted from the total. No part of the apparatus may be used for **close proximity retention or deflection of air in the internal flywheel shroud area.**

20.6. Fuel Tank

a) The stock Honda fuel tank MUST be removed from the top of the engine, and should not be re-used. Fuel tank mounting ears may be removed.

20.7. Gaskets

a) Sidecover gaskets, as well as carburetor bowl gaskets and o-rings must be of stock appearing shape.

b) Maximum thickness of the exhaust gasket is 0.125" as raced, with only minimal leakage permitted in "muffler" classes.

c) Two induction gaskets are required - one on each side of the phenolic spacer. These induction gaskets shall be of stock appearing shape, and each shall have a maximum thickness of 0.030" compressed.

20.8. Governor

a) The governor and decompression apparatus may be removed from the engine, including the portions attached to the camshaft. Any EXTERNAL holes caused by this removal MUST be plugged.

20.9. Coatings

a) The cylinder block, side cover and head finish and texture must be AS CAST from Honda.

20.10. Recoil

a) The standard utility recoil starter assembly must be entirely in place on all Honda engines and must be the only method of starting the engine.

20.11. Shrouds

a) Shrouds to replace the air passage of the stock fuel tank will NOT be permitted.

b) Flywheel shrouds must not be altered in any way to alter the airflow or change appearance, except for chrome plating or painting.

c) Covered fan intakes are allowed only in the pit lane and must be cleared BEFORE entry onto the racing surface.

20.12. Switch

a) The ignition switch may NOT be removed, and must function.

20.13. Cooling Fan

A) The only fan that is allowed is stock, unaltered Honda part # 19511 – ZE1 – 000.

21. HONDA FOUR-CYCLE ENGINE PREPARATION

a) **Bearings, main:** Main bearings must remain as a press fit in the block after the engine has attained ambient atmospheric temperature, and must not be removable by pulling tools that have no extra mechanical advantage/leverage over manual pulling.

Loctite type compounds, pocket dimpling/knurling, or any other form of retaining devices are NOT legal.

Main bearings must be standard, unaltered, genuine Honda parts, manufactured and listed for the particular model of engine being inspected.

b) **Block:** Blocks must be original GX-120, GX-140, GX-160, GX-160/K-1, GX-160/T-1 or GX-200.

The engine block must be in OEM as cast condition. There must be no machining, except as permitted in these Regulations.

Welding to repair cracks or breakage is allowed only in areas where the affected portion does not require re-machining, and not in areas where the welding may be construed as a performance gain.

Class structure determines which engine blocks that may compete in that class.

c) **Cylinder Length:** On GX-140, GX-160, GX-160/K-1 and GX-160/T-1 blocks - 4.620" MINIMUM.

d) **Cylinder Head:** Certain GX heads are slightly machined at the outside edge of the ports and/or in the valve guide area for flash removal. Eligibility in this area is to be determined by the Technical Inspector. No alteration, modification or machining is permitted to the head except for the head gasket surface. Valve seats may not be re-seated shallower in the head. **Head** interchange between GX-160 GX-160/K-1 and **GX-200** is not permitted. **GX-160/T-1 heads may be interchanged with GX-160/K-1 heads.**

The entire inlet and exhaust tract surfaces must remain STOCK as compared to one of the three configurations possible in other known stock heads.

Thread saving devices in the spark plug hole must be installed so that a Combustion Chamber Volume test will be the same as with the original thread.

e) **Head Gasket:** GX-120 head gaskets may not be altered in any way. Head gaskets for GX-140, GX-160, GX-160/K-1, GX-160/T-1 and GX-200 are not subject to Technical Inspection.

f) **Valve Cover Gasket:** Stock Honda valve cover gaskets may be replaced with any gasket of the same basic shape as the stock Honda gasket. The thickness of the gasket must be within specifications listed for the engine model. The gasket may be affixed to the valve cover.

g) **Valves:** Valves must not be altered, polished, lightened, welded, brazed, or machined in any way, except as permitted in these Regulations. Only stock, unmodified valve keepers may be used, installed properly on the appropriate valve.

h) **Valve Springs:** Valve springs may not be heated and/or stretched. Shimming is not permitted. Valve spring colour is a non-tech item.

i) **Pistons/Rings:** Re-sizing, knurling, or lightening of pistons is not permitted.

The use of piston button(s) is not permitted.

Coating of pistons is not permitted. Anodizing of pistons is not permitted.

All three piston rings must be used, installed correctly, with the identification marks toward the head. Ring tension may not be changed by heating or other means.

Ring gaps are not subject to Technical Inspection. The ends of each piston ring may only be altered in a way that appears to be the same as a known, stock, unaltered, Honda ring for the appropriate type/ model of engine.

The piston oil control ring (third ring) may be either single or 3-piece design, provided that it (they) are stock OEM rings, appropriate for the type/model of engine used.

Piston rings and pistons (dished or flat top) are interchangeable between the GX-160/K-1, GX-160/T-1 and GX-200.

j) **Camshaft:** No alteration, additions, removal of material, modifications or machining of any kind is permitted, with the exception of removal or partial removal of the decompression apparatus.

Each type of engine must use the camshaft designed and appropriate for that type of engine. (e.g. a GX-160/K-1 camshaft can only be used in a GX-160/K-1 engine)

k) **Crankshaft Gear:** The crankshaft gear may be rotated to change the camshaft timing on all engines except the GX-120.

l) **Flywheel:** Must be stock and unaltered.

A K-1 or a GX-200 engine may have a flywheel from either a GX-160/K-1, GX-160/T-1 or a GX-200.

m) **Shrouds:** The cooling shrouds must be present and unmodified.

n) **Ignition:** Only OEM parts are permitted, except for the flywheel key. No CDI.

Ignition timing in all classes (except GX-120, which must also use an OEM flywheel key) is not subject to Technical Inspection, and can only be altered from stock in these classes by modification or removal of the flywheel key.

o) **Muffler:** Dependant upon local Club Rules, a standard Honda muffler may be used in classes in which a restrictor plate of less than 0.500" is utilized.

In Senior classes, Junior classes with no restrictor plate, and Junior classes requiring a 0.500" restrictor plate, a header and silencer must be used.

p) **Carburetor:** No alteration, modification, or machining of ANY kind is permitted to ANY part of the carburetor, unless specifically stated in these Regulations.

The choke assembly must remain completely intact, and stock.

The throttle plate and plate fastening apparatus must remain STOCK for the appropriate engine.

The portion of the throttle shaft within any part of the body of the carburetor must conform to the measurements of a stock, unaltered shaft for the appropriate engine.

The EXTERIOR control linkage apparatus may be modified or replaced in a manner approved by the Technical Inspector.

q) **Spark Plug:** Spark plug may be of any manufacture, provided that it has the same reach as intended for the particular engine. In the Honda GX series of engine, a 0.750" reach is required. Reach is defined as **0.755"** maximum, measured from the upper gasket surface of the spark plug to the parallel, lower, squared edge of the threaded portion of the plug.

r) **Spark plug gasket:** A gasket and/or a temperature gauge sensor must be installed under the upper gasket surface of the plug.

The height (thickness) of the gasket/sensor must be greater than 0.003"

s) **Spark Plug Cap:** Any spark plug cap may be used.

t) **Valve Guides:** The valve guides in GX-140, GX-160, GX-160/K-1, GX-160/T-1 and GX-200 may be pressed flush with the port floor.

22. HONDA GX-160 AND GX-160/K-1 AND GX160/T-1 SPECIFICATIONS

a) **Bore:** 2.692" (68mm) - 2.720" (69mm)

b) **Stroke:** 1.756"min. - 1.776" max.

c) **Piston Length:** GX-160, GX-160/K-1 dished piston: 2.102" minimum.

GX-160/T-1 piston: 1.920" minimum.

d) **Piston Dish:** Dished pistons must remain as cast.

e) **Cylinder Height:** 4.620" minimum. Surface finish is not subject to Technical Inspection.

f) **Combustion Chamber Volume:** GX-160: 25.50cc min. as raced.

GX-160/K-1 and GX160/T-1: 21.00cc min. as raced.

g) **Head Height:** Measured from the head gasket surface to the unaltered valve cover surface.

2.885" minimum height.

Finish of head gasket surface is not subject to technical inspection.

h) **Port Diameters:** AS CAST, OEM. The entire inlet and exhaust tract surfaces must remain STOCK as compared to another known stock head.

GX-160: Exhaust: 0.835" maximum.
Inlet: 0.788" maximum.

GX-160/K-1 and GX-160/T-1: Exhaust: 0.920" maximum.
Inlet: 0.890" maximum.

i) **Valve Seat Diameters:** Exhaust: 0.872" maximum.

Inlet: 0.910" maximum.

j) **Valve Springs:** Unaltered, Honda GX, or G200 valve springs are permitted. Valve Springs must either conform to Specification A or Specification B.

k) **Valve Springs Spec A:** Free length, post race: 1.450" maximum

Wire Diameter: 0.075" - 0.0795"

Coil Diameter: 0.790" - 0.815"

l) **Valve Springs Spec B:** Free length, post race: 1.450" maximum

Wire Diameter: 0.070" - 0.073"

Coil Diameter: 0.775" - 0.790"

m) **Valves:** Stock GX-160, GX-160/K-1 and GX-160/T-1 valves must be used. Stellite exhaust valves, #14721-ZH8-810 are allowed.

n) **Ignition Timing:** Not subject to Technical Inspection.

o) **Crankshaft Rod Journal:** 1.175" minimum.

p) **Connecting Rod Length:** 2.350" minimum – 2.370" maximum, inside measurement, unaltered.

q) **Connecting Rod Big End Bore:** 1.177" – 1.184"

r) **Piston Pin:** 0.705” min. – 0712” max. OD.

0.557” max. ID.

2.120” min. length.

s) **Valve Cover Gasket Thickness:** 0.030” min. – 0.063” max. uncompressed.

t) **Carburetor:** Venturi: 0.515” GO – 0.525” NOGO.

Emulsion Tube Heights: 0.410” GO – 0.430” NOGO.

u) **Flywheel:** Stock, unaltered GX160/K-1 or GX200 flywheel.

v) **Shroud:** Any approved GX series (GX-140, GX-160, GX-160K-1, GX-160/T-1, GX-200) unaltered shroud may be used. No addition of material is allowed.

23. HONDA EXHAUST SYSTEMS

23.1. Mufflers In Classes Requiring Stock Muffler

a) Permitted small outlet mufflers are #18310-ZE1-01, and #183A1-ZE1-811.

b) The muffler flange may not be matched to the exhaust port.

c) Mounting nuts must be tight, and the STOCK gasket properly installed such that gases cannot leak.

d) Exhaust gases from the engine may only exit through the outlet opening of the muffler.

23.2. Exhaust Header/Silencer In All Other Cases

a) A header and silencer must be used, according to the following regulations:

b) Outside diameter of the header tubing throughout the entire length shall be 0.925” MINIMUM - 1.005” MAXIMUM except for the bend area where the diameter shall be 0.900” minimum – 1.050” maximum.

c) The exhaust opening through the flange must be no smaller, at any measured diameter, than the ID of the header tubing.

d) Header tube wall thickness shall be 0.040” min. – 0.070” maximum.

e) The diameter of the header tube from the flange to the bend is a non-measured item BUT the entire header tube must be made from the same constant diameter, single piece of tubing.

f) There shall be no protrusion into the head exhaust opening.

g) The length of the header shall be 8.000” min. – 12.000” maximum, not including the silencer. Measurement to be taken with a tape measure, inserted through the header, hooked on one end, drawn tightly toward the other end, and measured on the inside of the bend at this other end.

h) The silencer must have a support brace clamped or bolted to an approved, appropriate location on the engine. It is recommended that an additional tether arrangement be utilized, joining the header/silencer to the engine or to the Kart.

i) The header must be pointed rearward when compared to a line parallel to the rear axle.

j) No part of the exhaust system may be more than 20.0 inches from the racing surface, as raced. This is a PRE-TECH item initially. Eligibility at post-race tech will be at the discretion of both the Technical Inspector and the Steward or Clerk of the Course of the event. If there is no unanimous agreement, the entrant is LEGAL.

k) No portion of the exhaust system may protrude behind a vertical plane defined by the rear edge of the rear bumper.

l) The silencer must be an unaltered RLV B-91.

m) A minimum of 1.000” of the header must be inside the silencer at all times.

n) Coating and/or painting of the header is not allowed. The required, heat protective wrapping of the header and silencer must be securely fastened to prevent loss. Technical inspection of the silencer and/or header may require removal of the wrapping.

o) There may be no extra holes in the header.

p) Header material must be magnetic. It is recommended that a material superior to mild steel be used in its construction.

q) The specified silencer must be installed in such a manner as to prevent exhaust discharge from being diverted to any point except the unmodified discharge of the silencer. Any attempt made by a competitor to install the silencer so that exhaust gases are diverted from the designated discharge point will be cause for Technical disqualification.

r) The maximum engine flange thickness is 0.255".

s) The cross section of the header must be basically round, except for port matching within the engine flange thickness.

t) A cracked or broken header may be changed during an event under the scrutiny of a Technical Inspector. In such cases, the competitor will start the next race from the back of the grid.

u) An entrant in post race Technical Inspection with a cracked or broken header shall be excluded from the results unless it is proven that the header was damaged after the final checkered flag.

v) A properly installed exhaust gasket (0.125" thick or less) must be used to seal the header to the engine in all header classes.

24. HONDA GX-200 SPECIFICATIONS

a) **Block:** The engine block must be in an "as cast" condition with no machining except where allowed by these Regulations. The only block that can be used is the GX-200.

b) **Bore:** 2.677" (68 mm) minimum - 2.720" (69 mm) maximum.

c) **Stroke:** 2.118" minimum. – 2.136" maximum.

d) **Piston:** Length 1.920" minimum

Dished pistons must remain as cast.

e) **Cylinder Deck Height:** Piston must remain 0.020" minimum below deck throughout the full rotation of the crankshaft.

The finish of the deck is not subject to Technical Inspection.

f) **Combustion Chamber Volume:** 28.0 cc. Minimum, as raced.

g) **Head Height:** Measured from the head gasket surface to the unaltered valve cover surface: 2.885" minimum.

The finish of the head gasket surface is not subject to Technical Inspection.

h) **Port Diameters:** Must be as cast.

Entire tracts must be STOCK when compared to a known stock head.

i) **Valve Seat Diameters:** Same as GX-160, GX-160/K-1, GX-160/T-1.

j) **Valve Springs:** Same as GX-160, GX-160/K-1, GX-160/T-1.

k) **Valves:** GX-160, GX-160/K-1, GX-160/T-1, GX-200 valves must be used.

Stellite exhaust valves #14721 or #2H8-810 are permitted.

l) **Valve Lifters:** Base width: 0.935" minimum, 0.945" maximum.

Height: 1.355" minimum, 1.370" maximum.

Base Thickness: 0.073" minimum, 0.083" maximum.

m) **Ignition:** Ignition timing is not subject to Technical Inspection.

Ignition timing changes may be accomplished only by altering the width of the flywheel key, or by using no key.

The flywheel must be a stock OEM flywheel for a GX-200.

n) **Crankshaft Rod Journal:** 1.175” min.

o) **Connecting Rod Length:** 2.350” min. – 2.370 max. inside, unaltered.

p) **Connecting Rod Big End Bore**: 1.177” – 1.184” max.

q) **Piston Pin:** Outside Diameter - 0.705" minimum, 0.710" maximum.

Inside diameter - 0.557" maximum.

Length: 2.120" minimum.

r) **Carburetor:** Venturi: 0.575" NOGO

Jet: 0.033” NOGO

Emulsion Tube heights: 0.438” GO – 0.460” NOGO

California Carburetors: All rules regarding California emissions carburetors for GX-160/K-1 and GX-160/T-1 will apply. Any stock, unaltered Honda GX-140, GX-160, GX-160/K-1, GX-160/T-1 or GX-200 emulsion tube meeting the requirements of Regulation 22.4 (OLD or NEW style tube) is allowed.

s) **Phenolic Spacer:** Must be stock GX-200. The fuel line guide may be trimmed to facilitate inspection.

t) **Exhaust system:** GX-160/K-1 and GX-160/T-1 header rules apply.

u) **Piston Rings:** Must be stock Honda rings for GX200, GX160, or GX-160/K-1 and GX-160/T-1.

Rules under 4-CYCLE ENGINE PREPARATION GUIDELINES of these Regulations shall apply.

v) **Valve Stem Oil Seal Assembly:** Must be removed.

w) **Valve Cover Gasket:** 0.120” maximum.

x) **Recoil:** Any approved GX series (GX-140, GX-160, GX-160/K-1, GX-160/T-1, GX-200) utility motor recoil assembly may be utilized.

y) **Shroud:** Any approved GX series (GX-140, GX-160, GX-160/K-1, GX-160/T-1, GX-200) unaltered shroud may be used. No addition of material is allowed.

25. HONDA FOUR-CYCLE CAMSHAFT SPECIFICATIONS

25.1. GX-160, GX-160/K-1, GX-160/T-1 Camshafts

Lobe heights:	Exhaust: 1.085” min. – 1.095” max. Inlet: 1.085” min. - 1.092” max.
Overlap:	009 degrees minimum – 015 degrees maximum
Duration: See Next Table	Exhaust: 225 + * = 321 – 237 degrees Inlet: 003 + ** = 215 – 220 degrees

Lifts shown as 0.000” are for reference only.

LIFT	EXHAUST *	INLET **
0.000 inches	065-070 degrees	288-304 degrees
0.010”	110 - 113	332 - 339
0.020”	135	357
0.050”	151 - 154	012 - 015
0.100”	169 - 172	029 – 031
0.200”	215 - 217	073 - 077
Maximum lift:	0.230” @ 250 - 256 deg.	0.227” @ 105 – 108 deg.
0.200”	286 - 291	135 - 140
0.100”	332 - 336	181 - 184
0.050”	349 - 352	197 - 201
0.020”	006 - 012	212 – 217
0.000 inches	074 - 081	274 - 285

25.2. GX-200 Camshafts

Lobe heights:	Exhaust: 1.085” min. – 1.095” max. Inlet: 1.085” min. - 1.092” max.
Overlap:	25 – 28 degrees
Duration:	240 degrees – 245 degrees

LIFT	EXHAUST	INLET
0.010”	105 - 113 degrees	329 - 340 degrees
0.020”	135	357
0.050”	151 - 157	013 - 019
0.100”	170 - 174	032 - 037
0.200”	215 - 223	080 - 086
Maximum lift:	0.227”	0.225”
0.200”	293 - 297	152 - 158
0.100”	342 - 352	202 - 208
0.050”	000 - 004.5	220 - 226
0.020”	015 - 020	238 - 242

26. HONDA FOUR-CYCLE CARBURETOR AND RESTRICTOR

26.1. Carburetor Modifications

a) A permissible modification for ALL GX-160, GX-160/K-1 and GX-160/T-1 carburetors is to install an Allen set screw, not any other type of plug, threaded into the outermost portion of the entrance to the main metering air bleed passage. This set screw must be REMOVABLE. It must be drilled longitudinally through its center only with a MINIMUM #57 drill bit (0.042"GO) and must be no longer than 0.510". The main metering air bleed passage must be 0.042" GO in its entirety.

b) Another permissible modification for ALL GX-160 and GX-160/K-1 and GX-160/T-1 engine carburetors is to install an Allen set screw, not any other type of plug, to be threaded into the outer opening of the idle air bleed hole. This set screw must be REMOVABLE. The set screw must be drilled longitudinally through its center only, to a minimum 0.036" GO size and can be no longer than 0.510".

26.2. California Carburetors

a) A California carburetor is one that has four (4) transition orifices. Any California carburetor should be modified to the following specifications, except those in use in the GX120 engine.

b) The emulsion tube may be exchanged for a GX-140, GX-160, GX-160/K-1, and GX-160/T-1 emulsion tube of the older style.

c) The old style may be identified by the emulsion tube diagram in these Regulations. The emulsion tube must remain a stock, unaltered Honda part.

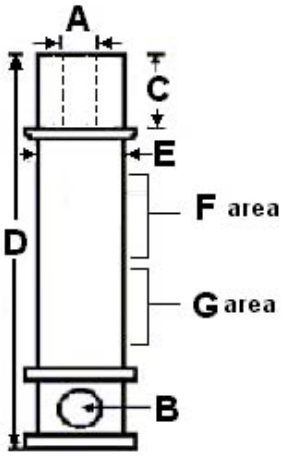
26.3. Carburetor Jet Sizes

The four cycle carburetor main jet sizes in all classes shall be OEM stamped #68, #70, #72 or **#75** and shall be **0.031"** NOGO, except for the GX-200 **at 0.035"** NOGO and the GX-120 where the jet shall be OEM stamped # 60 with the orifice being 0.024" NOGO.

26.4. Emulsion Tubes for GX-140, GX-160, GX-160/K-1, GX-160/T-1, GX-200

NEW STYLE :

A: 0.076'' NOGO
B: 0.029'' NOGO
C: 0.200'' max
D: 1.100'' - 1.110''
E: 0.155'' - 0.158''
F: 0.026'' GO - 0.029'' NOGO
G: 0.028'' GO - 0.031'' NOGO



OLD STYLE :

A: 0.076'' NOGO
B: 0.081'' NOGO
C: 0.200'' max
D: 1.100'' - 1.110''
E: 0.155'' - 0.158''
F: 0.014'' GO - 0.020'' NOGO
G: 0.024'' GO - 0.031'' NOGO

27. HONDA FOUR-CYCLE INSPECTION PROCEDURES

27.1. Carburetors

If the engine is a GX-160, GX-160/K-1, GX-160/T-1 or GX-200, the inspector should measure the emulsion tube height immediately after removing the carburetor from the engine, as the first part of the inspection procedure. The tube height is measured from the top of the emulsion tube to the upper surface of the carburetor venturi.

For all engines, remove the carburetor bowl. Remove the main jet and the emulsion tube, making sure that the jet was installed tightly. Check the main jet for permitted size using the appropriate NOGO. The use of glue or epoxy to fasten the emulsion tube to the body is not permitted. The tube must be held into the body of the carburetor by the main jet only. The emulsion tube must conform to the specifications and illustration in these Regulations.

Measure the venturi size, and ensure that it conforms to the appropriate Rule.

Using a GO gauge, measure the size of the main metering air bleed passage. (0.042" GO).

Using a GO gauge, measure the size of the opening of the idle air bleed hole. (0.036" GO).

27.2. Combustion Chamber Volume

Refer to checking procedures in the TECHNICAL INSPECTION PROCEDURES section of these Regulations.

27.3. Engine Head Technical Inspection

Remove the head from the engine. Measure the head height using a vernier caliper. The measurement is taken from the head gasket surface to the unaltered valve cover surface. For close calls, use a micrometer.

Visually inspect the ports and measure them.

Measure the valve seat diameters and check for seats that are not recessed all the way into the head.

27.4. Measuring Cylinder Length

On GX-140. GX-160, GX-160/K-1 and GX-160/T-1 blocks a measurement shall be taken between the deck surface and the surface of a 25.00 mm mandrel shaft, minimum diameter of 0.983", inserted through the crankcase bearings.

The side cover must be in place, utilizing the dowel pins and gasket, and bolted tight.

The distance from the deck surface to the mandrel shaft must be a minimum of 4.620". The length may be altered to specification. Surface finish is not subject to Technical Inspection.

27.5. Piston Top

The "dish" of a piston is measured from the top of the piston at the outer edge to the lower central point.

27.6. Valve Springs

a) **Dimensions:**

The technical linear measurements for valve springs must conform to the given measurements in the appropriate sections of the Rule book, according to type.

b) Measuring Valve Springs:

Free length: Measured anywhere between the ends of the spring, with axis of measurement perpendicular to the centerline of the spring, using a vernier or approved tool.

Wire Diameter: Measured anywhere on the round portion of the spring wire using a vernier.

Coil diameter: Measured across the entire spring length at one time with a vernier. If there appears to be a lateral deformity in the spring during the measurement, the measurement will be taken across each individual coil using a vernier, micrometer, or other approved tool.

c) Valve Spring Tension:

Valve spring tension testing shall be done using any equipment deemed suitable by the Technical Inspector. The official ASN tool measures tension converted from "force in inches of water column".

For GX-140, GX-160, GX-160/K-1, GX-160/T-1 and GX-200 engines, spring tension, as tested after the event, shall not exceed the maximum allowed parameters when compared to a known, eligible, stock, unused Honda valve spring.

If 42 inches of water column is required to compress a new spring by 0.200" over its normal static compression (as installed in an engine, uncompressed), then the spring in tech must not require more than 38 inches of water column for the same 0.200" of compression (90%).

For GX120 engines, the parameters are: If 22 inches of water column are required to compress a new spring 0.200" over its normal static compression, then the spring being tested must not require more than 20 inches of water column for the same 0.200" compression (90%).

27.7. Camshaft Inspection GX-140, GX-160, GX-160/K-1, GX-160/T-1, GX-200

The crankshaft gear may be rotated to change the camshaft timing, except on the GX-120, but the parameters listed in FOUR-CYCLE CAMSHAFT SPECIFICATIONS in these Regulations always stay the same as they are based on a fixed position of the camshaft at a given point (.020", valve UP)

Attach a dial indicator to the deck surface. Place the dial indicator over the exhaust camlift portion. Attach a degree wheel to the crankshaft loosely.

Position the crankshaft so that the exhaust lobe is UP 0.020", and set the degree wheel pointer at 135 degrees.

Turn the wheel to TDC, the indicator should read 0.000". Read the appropriate lifts.

Switch the dial indicator to the intake camlift portion. Set the lobe UP 0.020" and read. Determine overlap.

With the intake lobe still "UP" at 0.020", change the degree wheel to read 357 degrees and take the intake readings.

All readings should fall within the parameters set up in the FOUR-CYCLE CAMSHAFT SPECIFICATIONS in these Regulations. A variant from allowable specification of more than one degree is allowed only ONCE on each lobe. If one or more of the parameters including overlap, duration, and maximum lift are NOT met. This is a situation where Technical Inspection does not end when an illegality is found, and the camshaft should visually be checked.

If the camshaft is removed from the engine for visual check, lobe height measurements, as found in the FOUR-CYCLE CAMSHAFT SPECIFICATIONS in these Regulations should be measured, as well. No tolerance is given on these measurements.

28. HONDA FOUR-CYCLE REPAIR PROCEDURES

Allowable piston and ring overbore sizes for GX-120, GX-140, GX-160, GX-160/K1, GX-160/T-1 and GX-200, are 0.25 mm 0.50 mm, and 0.75 mm.

Lapping of valves, valve re-facing, and grinding are usual repair shop procedures allowed in a normal fashion for all the Honda engines.

The valve seating surface of the seats may be re-ground or cut, but that surface must retain an angle of 45 degrees and be wide enough to be EASILY MEASURABLE. The upper edge of that surface may be machined at an angle of 30 degrees to reduce seat width. The lower edge may be machined at an angle of 60 degrees.

Heads with excessive machining will be considered unacceptable manufacturer's deviations.

Valve guides may be knurled using normal repair shop procedures. Repair or alteration in the area of the cylinder head rocker arm stud threaded bore is not permitted.

29. FOUR-CYCLE FUEL REQUIREMENTS - GASOLINE TO BE USED

Four-cycle classes are required to use REGULAR UNLEADED gasoline obtained from a specified location for each event. The source shall be stated in the Supplementary Regulations and publicized at registration.

30. TECHNICAL INSPECTION PROCEDURES

30.1. GO and NOGO

The term "GO" is defined as the result of utilizing an apparatus of fixed and known size that shall pass through without forcing, a pre-determined size of opening.

The term "NOGO" is defined as the result of utilizing an apparatus of fixed and known size that shall not pass through, or even start to pass through, a pre-determined size of opening.

Irregularly shaped holes, as determined by the Technical Inspector, shall be measured with a vernier caliper, "plate NOGO", "circular NOGO", telescoping gauge/outside micrometer or other tool, to determine eligibility.

30.2. Measuring Combustion Chamber Volumes

Motocraft ATF Dexron III / Mercon Automatic Transmission Fluid (28-1502-6 1 L) available for purchase at Canadian Tire is the recommended test fluid. An alternate test fluid may only be used if specified in the supplementary regulations.

The flow rate of the test fluid into the combustion chamber is not specified.

Conduct the test only after the engine has cooled to approximate ambient temperature.

No cleaning of the head or piston is allowed.

For proper calibration only, the test must be performed with a graduated Grade A, GLASS burette and **glass/teflon** stopcock as follows:

All classes requiring a combustion chamber volume test MUST be inspected using the LAD ccv Tool.

Step 1: Remove the spark plug.

Step 2: Remove **valve cover and** push rods from 4 cycle engines.

Step 3: Place the engine in a position such that machined top surface of the spark plug hole is approximately level on both horizontal axes.

Step 4: The machined spark plug seal surface, and the adapter top surface must be clean and dry.

Step 5: Install the LAD ccv Tool with the same finishing torque as a spark plug.

Step 6: Fill the burette with **the test fluid** to approximately 0.5 cc above the 0 (zero) mark, carefully minimizing the amount of air bubbles formed during the filling process. Allow sufficient time for all air bubbles to rise to the surface.

Step 7: Bleed all the air from the stopcock and outlet stem. Run fluid from the burette, until the TOP of the meniscus curve is on the 0 (zero) mark.

Residual fluid remaining on the tip of the outlet stem must be removed.

The reason for using the TOP of the curve is that any lateral variation in the handling of the burette can be corrected instantly, as the same reading must be obtained on the LEFT and the RIGHT side of the mark. A variation in the burette, FRONT to BACK, also has less influence on the sighted level when using the TOP, rather than using the bottom of the curve, which can change considerably.

Step 8: Turn the crankshaft in its normal rotation, so that the piston is APPROACHING Top Dead Centre (approximately 15 degrees or 1 mm BTDC).

Step 9: Dispense the specified quantity of fluid **through the LAD adaptor** into the combustion chamber. In **4-cycle engines** he Technical Inspector should “rock” the engine slightly on both axes to allow any trapped air to escape through the plug hole.

Step 10: Any residual fluid remaining on the outlet stem should be added to the fluid dispensed.

Step 11: Slowly turn the crankshaft back and forth over TDC to determine the highest level for the fluid.

Step 12: If any fluid rises above the level of the top of the adapter, the engine is not within specification.

Procedure for re-testing: If some oil is spilled externally during the test, or if too much oil is added into the engine at inspection, a re-test is required.

DO NOT RE-MOUNT AND RUN THE ENGINE to clean it out.

Drain as much of the oil as possible (engine upside down). Remove the head. With a soft cloth and minimal amount of WD40 or carburetor cleaner ON THE CLOTH ONLY, carefully remove as much OIL ONLY as possible from the head, head gasket and piston top without removing an excess of carbon.

Ensure that the spark plug thread and the LAD tool bore is clear of oil.

Since a very small amount of oil may be trapped between the piston and the cylinder above the ring after washing the piston top, turn the piston up and down and clean the bore of oil until no appreciable oil remains. Because some carbon will inadvertently be removed, the cc. advantage goes to the competitor, as it should.

Have the engine builder re-install the head. If not present, the owner OR the Technical inspector may install the head, at the owner's discretion.

Re-test.

30.3. Measuring Engine Displacement

BORE in cm X BORE in cm X 0.7854 X STROKE in cm is the engine displacement.

30.4. Measuring Two Cycle Exhaust Duration

a) The cylinder must be held in place by its normal retainers.

b) A degree wheel or digital equivalent must be used.

c) For degree checking purposes, the engine must be rotated in the normal operating direction when the degrees are checked.

d) A 0.20 mm X 10 mm wide feeler gauge must be used, sharpened to a point at the end, at approximately 45 degree angles.

e) After rotating the crankshaft past TDC, and slightly past Exhaust Port opening, insert the sharpened end of the feeler gauge into the exhaust port until the full width reaches over the edge of the piston. This gauge may be set in position from the inside of the cylinder or through the duct of the port to be checked.

f) The start and finish of the angle measurement shall be the position in the opening whereby the feeler gauge will allow the measurement of the largest angle possible.

g) Turn the crankshaft backwards until there is a light contact of the piston to the feeler gauge, restricting rotation, and maintain that position. The angle of the feeler gauge is not a factor in the measurement. The gauge will not be either horizontal or vertical.

h) Set the degree wheel at 0 (zero) degrees.

i) Continue to rotate the crankshaft in the normal operating direction past BDC until the piston again lightly contacts the feeler gauge, restricting rotation.

j) The degree wheel must read the specified number of degrees or less.

30.5. Stock Appearing

For a component to be "stock appearing" it must resemble the original component in BASIC shape and measurement as viewed before removal of the component from the engine. On portions of the component that cannot be seen externally at this time, removal for inspection is required. Any regulations, general or specific for the component must be adhered to, but the internal shape of the component is not cause for disqualification on its own.

There are many variable possibilities involved within this definition. Upon appeal, final decisions on legality ultimately are the responsibility of the National Technical Delegate.

31. FUEL AND OIL TESTING

31.1. General Conditions

Competitors are NOT entitled to any pre-race fuel check, either for themselves or another competitor.

A fuel check may be taken at any time during the event, from any part of the fuel system.

The Technical Inspector shall purchase sample fuel from the designated source during the practice day for the event. The sample fuel will be used as a baseline for comparative checking of competitor's fuel.

The Technical Inspector may use ANY method to determine fuel legality, provided that the method is used fairly and equally on all competitors tested.

31.2. Fuel Checking Procedure

When using a conductivity sensitive fuel probe, normal procedure is to dip the fuel tester probe into the competitor's fuel tank at any time during the entire event, to determine if the Competitor's fuel is within specification.

A test sample will be taken from the fuel line to the carburetor into a glass bottle and tested when:

There is insufficient fuel in the tank. Insufficient fuel to test is defined as less than 10 fluid ounces.

There is insufficient access to the tank.

The fuel level cannot be seen in the tank.

Any other reason determined by the Technical Inspector.

Any additional test for gasoline and/or oil that is deemed acceptable by the Technical Inspector shall be admissible (i.e. specific gravity-hydrometer, additives-water test etc.).

The Technical Inspector may compensate for changing temperature and humidity by re-calibrating testing equipment to a known, fuel sample that is being used in the event.

31.3. Testing Four Cycle Fuel and Oil

a) Fuel:

When using a conductivity meter, the probe is dipped into the competitor's fuel tank at any time during the event, to determine if the competitor's fuel is within specification. The Competitor's fuel shall not exceed plus or minus ten (10) of the sample when using the Digitron meter.

When using a hydrometer, the specific gravity of the Competitor's fuel shall not exceed 0.025 plus or minus of the standard sample, where water is 1.000.

When using the water test, no tolerance from the standard sample is allowed.

The test sample will be collected from the fuel line to the fuel pump, into a glass bottle, and tested if there is insufficient fuel in the tank for the test(s), or if there is insufficient access to the tank filler, or if the fuel level cannot be seen in the tank, or any other reason as determined by the Technical inspector.

The Technical Inspector may compensate for changes in temperature and humidity by re-calibrating the test equipment to a known, legal fuel sample that is being used in the event.

b) Crankcase Oil:

A sample of engine lubricating crankcase oil may be requested at any time by the Technical Inspector.

Competitors are not entitled to an oil check at any time during the event.

Laboratory testing may be required of a suspect oil. Failure to produce a sample for tests is grounds for disqualification.

Crankcase oil may not contain any additives or chemicals that are oxygen bearing or generating or vapour producing, or any that are carcinogenic. All components must be for lubrication only.

Any Oil tester that is accepted by the Technical Delegate may be used. This may include the Snap-On # ACT 5600.

31.4. Testing Two Cycle Fuel

When using the conductivity meter, the reading for each competitor must be within a range of zero (0) to minus five (-5) of the test fuel/oil mixtures used as a base for that particular oil.

When using a hydrometer, the specific gravity of the competitor's fuel shall not exceed 0.050 (plus or minus) of the standard sample, where water is 1.000.

When using a water test, no tolerance from the standard sample is allowed.