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, 2007

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 email 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.

Out of compliance parts, equipment or configuration on the kart, are not deemed to have been authorized or approved by reason of having passed through the inspection process at any time or any number of times.

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, measurement **or appearance** 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. Rotax Classes

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

3.2. 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. Changing to the second declared engine may occur only if there is physical damage upon approval by the Technical Inspector.

3.3. 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-sealed or re-marked and the entrant must start at the rear of the grid.

b) **Formula A, ICA, ICA JR, ICC, KF1, KF2, KF3, KF4, KZ1, KZ2:** 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 Canadian Rotax Max Challenge 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. Changing to the second declared engine may occur only if there is physical damage upon approval by the Technical Inspector. The engine must be sealed with paint and/or wire before competition use.

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.

3.4. 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 classes.

Drivers may only use equipment listed on their Pre-Technical Inspection Self-Declaration or Technical Passport.

In all classes, if physical damage occurs to the engine(s) listed on the Pre-Technical Inspection Self-Declaration form or Technical Passport or if a chassis has physical damage (to be considered unsafe or broken) that would prevent an entrant from competing, an unlisted replacement engine or replacement chassis may be used with the approval of the Technical Inspector prior to use. The change must be noted on the Pre-Technical Inspection Self-Declaration form or Technical Passport. In Rotax classes, a Rotax Passport must be submitted for the replacement engine. The appropriate parts must re-sealed or re-marked. An entrant using a replacement engine or chassis must start at the rear of the grid.

The penalty for unauthorized use of equipment is exclusion.

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 (and Rotax Passport in Rotax classes). Registration will issue the appropriate kart sticker for the event only after payment of all event fees and completion of all required paperwork. The participant must attach the sticker to the designated location on the appropriate kart before it is allowed to enter the track for any session.

Any changes required on the completed and submitted Pre-Technical Inspection Self-Declaration form (and Rotax Passport in Rotax classes) must be completed and accepted by the Technical Inspectors before qualifying sessions begin in any class or before a designated time.

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 (and Rotax Passport in Rotax classes) are subject to penalty. Drivers who enter Post-Race Technical Inspection and are found to have an incomplete or missing Pre-Technical Inspection Self-Declaration form (or Rotax Passport in Rotax classes) will be excluded.

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

The Pre-Technical Inspection Self-Declaration form (and Rotax Passport in Rotax classes) is retained by the Technical Delegate. Rotax Passports are retained by the Technical Delegate until Post-Race

Technical Inspection is complete for all classes. At this time Rotax competitors may retrieve their Rotax Passport.

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.

Any changes required on the completed and submitted Technical Passport (and Rotax Passport in Rotax classes) must be completed and accepted by the Technical Inspectors before qualifying sessions begin in any class or before a designated time.

Drivers who enter Post-Race Technical Inspection and are found to have an incomplete or missing Technical Passport (or Rotax Passport in Rotax classes) will be excluded.

The Technical Passport (and Rotax Passport in Rotax classes) is retained by the Technical Delegate. Rotax Passports are retained by the Technical Delegate until Post-Race Technical Inspection is complete for all classes. At this time Rotax competitors may retrieve their Rotax Passport.

5. TECHNICAL MARKING PROTOCOL

5.1. Responsibility for Marking and Sealing

It is the responsibility of the driver to ensure that their entry has been properly marked or sealed for competition and Technical Inspection (engine, tires, and chassis where required) **at any time during the competitive portion of the event.** Failure to do so may cause penalty, as determined by the Steward(s) or Clerk of the Course.

5.2. Pre-Race Component Marking and Sealing

a) The engine, tires and chassis used by a driver in qualifying will be marked or sealed by a Technical Inspector at **a designated time and place** before, during, or after the qualifying session before the driver **and/or** mechanic or **Kart** 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.

d) Latex paint is recommended for engine marking.

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. Wire Sealing

a) Wire sealing must be accomplished prior to the beginning of the last practice session of an event. Care must be exercised not to create a weakness in the structure of the bolt and/or leakage from **a wire sealed** carburetor. An exhaust header retainer may be supplied to complete the sealing points.

5.5. Honda Engine Sealing and Replacement of Valve Springs

a) **Paint Sealing:** 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.

Centered carburetor bowl retainer bolt to bowl on all models **(not the drain bolt)**.

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

One exposed head bolt to the head.

b) **Wire Sealing:** The Technical Delegate or Inspectors may direct any entrant at any time during the event to have their engine(s) wire sealed by the Technical Delegate and Inspectors. If two engines are noted on an entrant's Pre-Technical Inspection Self-Declaration form or Technical Passport, then both engines shall be wire sealed.

For all engines registered on the Pre-Technical Inspection Self-Declaration form or Technical Passport, two of the valve cover retainer fasteners (diagonal to each other) and the carburetor float bowl retaining bolt must be cross drilled in an appropriate location with a minimum 0.078" hole to accept a wire seal.

c) **Replacement of Valve Springs:** The Technical Delegate or Inspectors may direct entrants after the last practice session to remove their valve springs and replace them with the Tech supplied Honda valve springs (Part #14751-883-000) under the scrutiny of the Technical Delegate or Inspectors, and have the engine sealed with paint and/or wire. If two engines are noted on the Pre-Technical Self-Declaration form or Technical Passport then the Tech supplied Honda valve springs shall be installed in both engines and both engines shall be sealed with paint and/or wire.

5.6. Two-Cycle Engine Paint/Wire Seal Marking:

These engines may be paint and/or wire sealed.

a) **Paint Sealing:** For air-cooled engines: one through cylinder head retainer nut sealed to the head. Paint mark the carburetor body.

For water cooled engines: one cylinder retaining nut sealed to the case/appropriate retainer stud, 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. Paint mark the carburetor body.

b) **Wire Sealing:** For air-cooled engines, one through cylinder retainer nut wire sealed to the head. Paint mark the carburetor body. **Minimum hole diameter 0.078".**

6. POST-RACE TECHNICAL INSPECTION

a) At the conclusion of any track session, the Steward(s) and/or the **Technical Delegate 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(s) and/or **Technical Delegate,** Technical Inspector or 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 the **Technical Delegate,** 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/driver and/or one mechanic** must attend each kart at the Parc Fermé/Technical Impound Inspection Area. Technical inspection may begin on a kart or engine without the entrant/**driver and/or mechanic** being present.

f) In addition to the vehicle and its components, anything mounted on or in a kart may be impounded by the Steward(s), **Technical Delegate** 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(s), **Technical Delegate** 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 **the Technical Delegate,** 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/**driver** is excluded from the results but the engine or other components may still be inspected as determined by the **Technical Delegate** or Technical Inspector. If the seals are unbroken and present a detailed engine inspection should begin to a level determined by the **Technical Delegate or** 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 Delegate or** Technical Inspector. The **Technical Delegate or** Technical Inspector will notify the Steward(s) that the entrant/**driver** is to be excluded upon completion of the inspection. If the entrant/**driver** 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/**driver or mechanic** without a Refusal of Appeal form being submitted the **entrant/driver** will be excluded from the results and no protest or appeal can be submitted.

   The Technical Delegate or Technical Inspector 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 Delegate or** Technical Inspector may use any tool(s) required for the inspection.

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

7. TECHNICAL RULES FOR WET RACING

The choice of wet or dry tires will be decided by the individual driver.

When wet **tires are used**, all Technical Regulations will be adhered to, except as follows:

a) If **wet** 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) Specified manufacturers and compounds of tires may be required. A competitor may not mix and match tires from different manufacturers or different designations or compounds.

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

d) 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.

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

f) 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.

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

h) Front and rear wet rims and tires must be used at the appropriate locations.

8. GENERAL SPRINT KART SPECIFICATIONS

8.1. Eligible Chassis

a) In the Rotax Max Challenge classes, only chassis allowed by the Canadian 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, ICA, ICA JR, ICC, **KF1, KF2, KF3, KF4, KZ1, KZ2** 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: all four cycle classes: each outer edge of the rear wheels may be a maximum of 2.5 cm narrower than the outer width of the appropriate side pod.

c) Minimum track width: all two-cycle classes: a line passing through the outer edges of the front and rear tires (steering wheel in straight ahead position) must be a minimum of 4 cm wider than the appropriate side bodywork.

Measured center to centre of front or rear tire sets: At least 2/3 of the wheelbase used.

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

e) Maximum overall width: all two-cycle classes except ICA JR, **KF3**: 55.1 inches (140 cm)

f) Maximum overall width: ICA JR, **KF3**: 53.5 inches (136 cm)

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

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

i) Minimum Kart weight, less driver: fully equipped and race ready all classes except Formula A, ICA, ICA JR, **KF1, KF2, KF3, KF4**: 130 lbs (59 kg)

j) Minimum Kart weight, less driver: fully equipped and race ready Formula A, ICA, ICA JR, **KF1, KF2, KF3, KF4**: 143 lbs (65 kg)

k) Maximum Junior Kart weight, less driver: fully equipped and race ready all classes except ICA JR, Rotax Max Junior, **KF3**: 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/below Kart components.

The floor plan must be made of rigid material that stretches only from the central strut of the frame to the front frame cross member of the kart, remaining within all confines of the chassis.

If it is perforated, the holes must not have a diameter of more than 10 mm and they must be apart by four times their diameter as a minimum.

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.

The steering wheel must be of closed loop design and circular, except that the upper or lower 1/3 of the wheel circumference may be flat.

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 ICC **(Formula Senior).**

8.12. Front Wheel Retention

Chassis that are CIK-FIA homologated/registered or meet CIK-FIA requirements can have a self-locking style retention nut in original condition.

All front axle spindles that are manufactured to receive a cotter pin, safety wire or snap ring must have these items installed.

8.13. Rear Axles

Rear axles must be of one-piece design.

For rear axles in all four-cycle classes, minimum cross sectional tube thickness is 2.50 mm.

For Formula A, ICA, ICA JR, ICC, **KF1, KF2, KF3, KF4, KZ1, KZ2** 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, **KF3** is 185 mm

Width of any rear wheel in all Junior and Senior four-cycle classes is 175 mm MIN. - 185 mm MAX. when using DRY tires

Width regulations for Novice and Cadet classes to be listed in the Supplementary Regulations

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

For Formula A, ICA, ICA JR, ICC, **KF1, KF2, KF3, KF4, KZ1, KZ2** classes all wheels require CIK-FIA approved bead retention, except for wet rims. 3 pegs minimum.

8.16. Wheel Balancing Weights

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

8.17. 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.

8.18. Bumpers

All CIK-FIA Homologated chassis must have CIK-FIA Homologated bumpers.

All 2007 CIK-FIA Homologated chassis must have 2007 CIK-FIA Homologated bumpers and 2007 CIK-FIA rear wheel protection, if required by their homologation.

Front, rear and side bumpers are compulsory. These bumpers must be made of magnetic steel. They must be homologated with the bodywork.

All classes require bumpers that conform with either 8.18.a) or 8.18.b):

a) 2005 ASN Canada FIA Bumper regulations for 2006 and older CIK-FIA and other chassis. See Bulletin 07-02 Book 2 Technical Regulations, 2005 ASN Canada FIA Bumper Regulations.

b) 2007 ASN Canada FIA Bumper regulations for 2007 or older CIK-FIA chassis.

Front Bumpers: The front bumper must consist of at least 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 two 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 four 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 centred in relation to the longitudinal axis of the kart.

The attachments of the upper bar and the lower bar must be welded to the chassis-frame.

Rear Bumpers: 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 two points (possibly by means of a flexible system) on the two 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.

Side Bumpers: 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 two points.

These two 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 50 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.

Rear Wheel Protection For 2007 CIK-FIA Homologated Chassis If Required By Their Homologation:

For all categories, rear wheel protection is mandatory and homologated by the CIK-FIA after having passed the homologation tests.

It is not permitted to modify the chassis to fit the rear protection (chassis modification only allowed by the manufacturer of the chassis, in the respect of the homologation form and of possible extensions).

The rear protection must be made of hollow plastic moulded in one piece and must not present any danger as regards safety. Furthermore, the structure must be moulded plastic without foam filling, and the wall thickness must be constant in order to provide uniform strength.

It may under no circumstances be situated above the plane through the top of the rear tires.

The surface(s) of the rear protection must be uniform and smooth; the rear protection must not comprise holes or cuttings other than those necessary for its attachment and/or present at the homologation.

Gap between the front of the rear protection and the rear wheels surface: 15 mm minimum, 50 mm maximum.

Minimum width: 1,340 mm.

Maximum width: that of the overall rear width, at any time and in all circumstances.

Ground clearance: 25 mm minimum, 60 mm maximum in a minimum of 3 spaces of a width of 200 mm minimum, situated in the extension of the rear wheels and the centre line of the chassis.

It must have a minimum height of 200 mm above the ground and have at the rear a vertical surface (+0°/-5°) with a minimum height of 100 mm immediately above the ground clearance, measured in a minimum of 3 spaces of a width of 200 mm minimum, situated in the extension of the rear wheels and the centre line of the chassis

Rear overhang: 400 mm maximum.

The unit must be attached to the frame in at least 2 points by supports homologated with the protection and made of plastic, steel or aluminum (possibly by a supple system) on the 2 main tubes of the chassis, or on the currently used bumper (upper bar and anti-interlocking bar), and it must be possible to install it on all homologated chassis (respecting the homologated F dimensions which vary from 620 to 700 mm.

In all conditions, the rear protection must at no time protrude beyond the external plane of the rear wheels.

8.19. Ballast Weight Mounting

Ballast weight must be securely attached to the **main Kart frame or seat**.

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, **both inside the seat and outside of the ballast.**

8.20. 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, **tie wraps** or safety wire.

8.21. Clutches

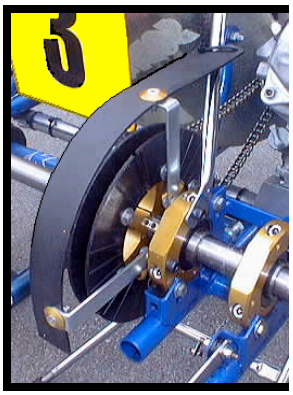
The use of a "wet" type clutch is allowed only when the unit is sealed to prevent fluid leakage.

All Karts with clutches must have a metal clutch guard.

Dry, **centrifugally operated engine mounted** clutches are mandatory in all four-cycle classes.

8.22. 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 Steward(s) **and/or the Technical Delegate if it is considered a hazard.**

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.

8.23. Chain Oilers

Chain oilers are not permitted.

8.24. 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.

8.25. Competition Numbers and Number Panels

All competitors must use solid numbers on a **bright yellow** background. The number shall be bordered by the contrasting background by 1 cm minimum.

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 15 cm (6-inches) high with a 2 cm (3/4-inch) thick stroke using an Arial type or similar font.

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.

If number plates are used they must have rounded corners (diameter of rounded corners 15 to 25 mm), be flexible and made of opaque plastic. They shall always be visible (fixation without a possible displacement).

8.26. Instrumentation and Communication

a) **Definition of** Data Acquisition: **Any** system, with or without a memory, installed on a Kart, **enabling** the driver **or their team** during or after an on track session to read, indicate, **acquire, record or transmit any** information.

b) Definition of Telemetry: Data transmission between a moving Kart and an external body.

c) Data acquisition during qualifying, heats and races is limited to systems with or without memory that permit the reading of only the following parameters: engine revolutions, two indications of engine

temperature, the speed of one wheel, one x/y accelerometer, lap times and engine hours. Systems capable of more than the specified input channels must have all channels other than those allowed disconnected or disabled.

d) Any system of telemetry is forbidden for the entire event.

e) **Any radio, electronic, or verbal communication between any driver on the track and any other body is forbidden.**

f) 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.

g) 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.

8.27. Throttle Return Spring

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

8.28. Seat Belts and Mirrors

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

8.29. Hand Controls

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

8.30. Transponder

Competitors are responsible to purchase their own transponder mount that attaches the transponder to the kart. Mounts are available for about $15 at most tracks.

For all practice, qualifying and race sessions, it is the responsibility of the driver to assure that an event-registered AMB–compatible transponder is fitted prior to entry to the track.

Loss or damage to a transponder provided by the event organizers may incur a cost of $300.00 to the driver.

8.31. Transponder Mounting Location

The competitor is responsible for securing the scoring transponder to the kart to prevent loss of the transponder.

The transponder must be mounted on the center of the rear of the driver seat.

The location must be 25 cm +/- 5 cm from ground level.

Minor offset from the center of the seat is permitted.

8.32. 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.

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

Any modification of a tire is forbidden. The treating of any tire with any chemical substance or by temperature alteration is forbidden.

Wet and Dry tires may not be mixed on the kart during any on track session.

Rear tire sizes must be used only on the rear of the kart. Front tire sizes must only be used on the front of the kart.

9.2. Tires For Use in Dry Track Conditions

a) Rotax Classes:

According to the Canadian Rotax Max Challenge Regulations.

b) All Other Classes:

For Qualifying, Pre-Final and Final races, competitors may only use one set of four dry tires.

For the Final race, competitors may replace one front dry tire and/or one rear dry tire if specified in the Supplementary Regulations.

9.3. Tires For Use in Wet Track Conditions

a) **Rotax Classes:**

According to the Canadian Rotax Max Challenge Regulations.

b) Other Classes:

For Qualifying, Pre-Final and Final races, competitors may only use one set of four wet tires.

For the Final race, competitors may replace one front wet tire and/or one rear wet tire if specified in the Supplementary Regulations.

10. BODYWORK SPECIFICATIONS

10.1. Components - Materials and Usage

a) Required bodywork components are: Steering column fairing, nose cone, side pods, and associated mounting brackets, **and for 2007 Homologated chassis, possible rear wheel protection if required in their Homologation.**

b) Nose cone and side pods must remain attached at their normal attachment points to the Kart after the completion of any session/race.

c) Nose cones must be attached to the Kart with the appropriate Homologated apparatus. Any form of reinforcement such as clamps, nuts/bolts, tie wraps, tape, wire, etc., is not allowed.

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

e) Plastic used for the bodywork must not be able to splinter, and shall have no sharp angles.

10.2. Bodywork Specifications

All CIK-FIA Homologated chassis must have CIK-FIA Homologated bodywork.

All 2007 CIK-FIA Homologated chassis must have 2007 CIK-FIA Homologated bodywork as required for the particular chassis.

All classes require bodywork that conform with either 10.2.a) or 10.2.b):

a) 2005 ASN Canada FIA Bodywork regulations for 2006 and older CIK-FIA and other chassis. See Bulletin 07-03 Book 2 Technical Regulations, 2005 ASN Canada FIA Bodywork Regulations.

b) **2007 ASN Canada FIA Bodywork regulations for 2007 or older CIK-FIA chassis.**

Side Pods:

The side pods must under no circumstances be located above the plane through the top of the front and rear tires (with the front wheels in the straight ahead position).

In 2 cycle classes, side bodywork may not be located outside the plane drawn through the external part of the front and rear wheels (with the front wheels in the straight ahead position).

In 4 cycle classes, side bodywork may be located outside the plane from the external part of the front to the rear wheels by a maximum of 2.5 cm.

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 bodywork must be uniform and smooth; it must not comprise holes or cuttings other than those necessary for their attachment.

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 bodywork 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 tolerance of +/- 5° in relation to the theoretical vertical plane) 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 outer rear vertical surface close to the rear wheels there must be a space for competition numbers.

Nose Cone:

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 tolerance of +/- 5° in relation to the theoretical vertical plane) with a minimum height of

80 mm and a minimum length of 300 mm located immediately above the ground clearance.

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

Front Fairing (Front panel):

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 nose cone.

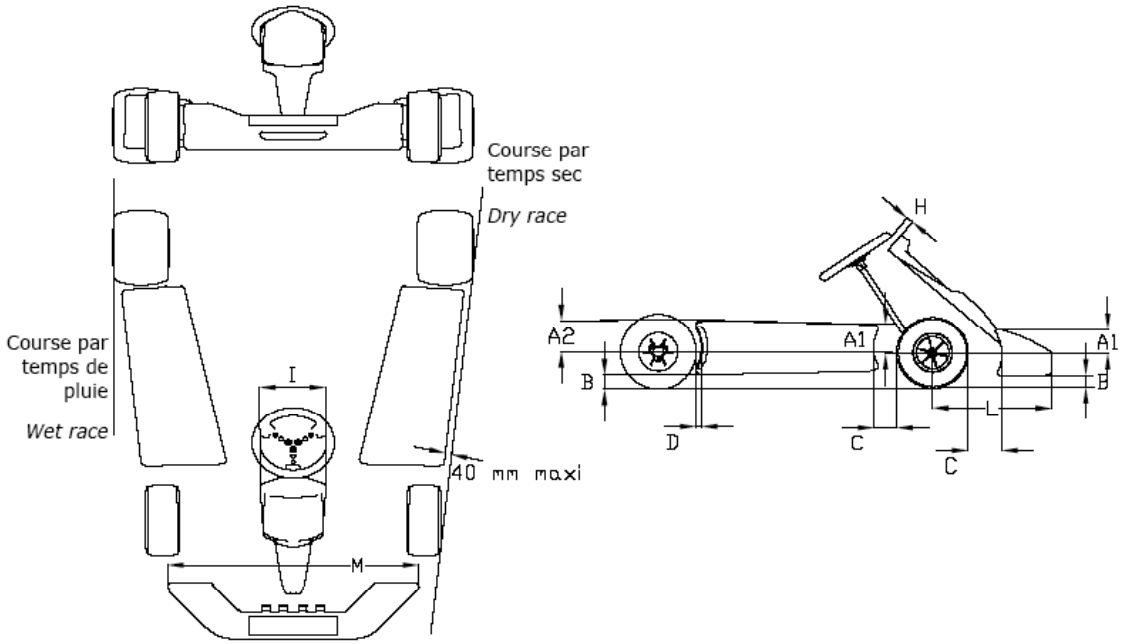
It must neither impede the normal functioning of the pedals nor cover any part of the feet in the normal driving position.

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.

10.3. 2007 Bodywork Dimensions



Code	Dimensions in mm	Limit	Comments
A1	Less than the front wheel radius		Front
A2	Less than the front wheel radius		Rear
B	25 60	Minimum Maximum	Driver on board Driver on board
C	150	Maximum	
D	60	Maximum	
H	50	Minimum	
I	250 300	Minimum Maximum	
L	650	Maximum	
M	1000 External width of front track	Minimum Maximum	

11. GENERAL TWO CYCLE RULES

11.1. Eligible Engines

a) **Formula A (FA)**: **Present** CIK-FIA **homologation** for competition in the Formula A (FA) class.

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 for competition in the (Intercontinental A) ICA class.

c) **Formula Senior (ICC):** Engines homologated by the CIK-FIA for competition in the (Intercontinental C) ICC class. **CIK-FIA has renamed this class to KZ2 and KZ1 with no major modifications.**

d) **Intercontinental A Junior (ICA JR):** Engines **must be currently** homologated by the CIK-FIA for competition in the Intercontinental A Junior (ICA JR) class.

e) **CIK-FIA New Concept Classes: For 2007 the CIK-FIA has introduced a new concept for two cycle engines. These 125cc engines have a reed valve inlet, are water-cooled, have an on board electric starter, centrifugal clutch, integrated water pump and a power valve. Revs are limited with homologated ignition systems from 14,000 rpm to 16,000 rpm depending on the category.**

New Class	Previous Equivalent Class	Ignition System Type (Rev Limit)
KF1	Formula A (FA)	Red (16,000 rpm)
KF2	Intercontinental A (ICA)	Green (15,000 rpm)
KF3	Intercontinental A Junior (ICA JR)	Blue (14,000 rpm)
KF4	New Class	Yellow (14,000 rpm)

11.2. Authorized Changes and Additions

a) **Intake Silencer:** ALL two-cycle classes require an approved air intake silencer.

The air intake silencer must be **currently** registered by the CIK-FIA, and conform to CIK-FIA specifications, **unless otherwise specified in the regulations for the particular class.**

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, **and is allowed in the regulations for the particular class.**

c) **Clutch:** Engines **must** be fitted with an operational clutch that will allow the engine to idle without moving the Kart **unless stated otherwise in the regulations for the particular class**. 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.

All clutches must have an engine mounted clutch guard.

d) **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.

e) **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.

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

12. FORMULA A (FA) CLASS PREPARATION

Inspected according to CIK-FIA regulations.

13. INTERCONTINENTAL A (ICA) CLASS PREPARATION

Inspected according to CIK-FIA regulations.

14. FORMULA SENIOR (ICC) ENGINE PREPARATION

a) **General:** All engines used in the Formula Senior class must have **be currently Homologated** for the Intercontinental C (ICC), **KZ2 or KZ1 classes** from CIK-FIA. The engine type is defined as: Water-cooled, single cylinder engine with reed-valve intake, one circuit only, with gearbox.

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

Each entrant must be able to present the appropriate Homologation forms for their engine if requested by the Technical Director or Inspector.

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.

It must not be possible to disassociate the engine from the gearbox. Engine case to be divided into two parts only, vertical or horizontal parting.

The crankcase may be machined to allow for a bar code sticker.

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

c) **Carburetion:** Specified as Dell'Orto models VHSH30, VHSH30BS or VHSH30CS only.

The carburetor must be strictly original and unmodified.

Setting changes are allowed only to the following elements:

The slide.

The needle.

The needle shaft (atomizer).

The jets and needle kit.

The floats and float chamber

All interchanged parts must be original-supplied and unaltered Dell'Orto VHSH 30 parts.

The incorporated fuel filter and/or main jet fuel stabilizer plate may be removed, but, if retained, must be original.

Venturi bore must be round and of 30.06 mm maximum diameter.

A properly affixed, supplemental sleeve on the outside diameter of the carburetor neck for the purpose of increasing this diameter for attachment to the engine is allowed.

All turbocharging, supercharging or other methods of forced induction are prohibited.

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:** Connecting rod centerline may not be altered, and must measure +/-0.2 mm. (0.008") of the homologated length.

Connecting rod material must remain as homologated.

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

g) **Displacement:** 125.00 cc. maximum - no tolerance.

h) **Exhaust Open Angle:** 199 degrees MAXIMUM - no tolerance.

i) **Exhaust system:** Expansion chamber must be CIK homologated for the engine used.

j) **Gearbox:** Must be as homologated by CIK, with a minimum of three ratios and maximum of six ratios.

Gear ratios must remain “as homologated”.

Mechanical gearbox control only, without assist.

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

Ignition timing tolerance shall be +/- 2 degrees of the homologated specification.

It is permissible to add a mass to the ignition rotor provided it is secured by at least two screws and no modification is made to the Homologated rotor.

Any system of ignition cutting is prohibited.

l) **Intake silencer:** Must comply with 2004 CIK or newer homologation.

m) **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).

n) **Power Valve:** All systems of “power valve” are prohibited.

o) **Radiator:** Radiator/cooling system must meet all current CIK specifications

NO part of the radiator may be higher than 50 cm. from the ground, as raced.

The radiator must be entirely above the chassis frame.

Maximum distance ahead of rear axle is 55 cm.

p) **Reed cage assembly:** Reed cage must be as described on the homologation form. Alterations to the reed cage surfaces are permitted provided any homologation form dimensional tolerances are not exceeded.

Aftermarket reeds, reed stops, and stuffers are permitted.

Number and thickness of gaskets is non-tech.

q) **Sealing:** One head bolt/head water jacket cover bolt and one cylinder mounting stud must be appropriately drilled to accept a wire sealing device. **Minimum hole diameter 0.078”.**

r) **Silencer:** Exhaust silencer construction and type is not controlled.

Use of a silencer is subject to maximum noise level restrictions **and to approval by the Technical Director or Inspector.**

s) **Spark Plug:** Make and model is open, subject to the following restrictions:

Thread type – M14 x 1.25.

Effective length of spark plug engagement into the cylinder head, compression ring installed, 18.5 mm nominal. When installed and tightened in the cylinder head, no part of the spark plug’s threaded portion including the end flat may protrude into the combustion chamber beyond the upper part of the dome. Electrode-specific protrusion into the combustion chamber is permissible.

t) **Stroke:** Cannot be greater than the homologated measurement.

u) **External modifications:** Subject to the restrictions previously specified in this section, modifications are allowed to any external element of the engine with the following exceptions:

Number of carburetors and diameter of venturi.

External appearance characteristics must remain “as homologated” or as covered by homologation extension.

v) **Internal Modifications:** Subject to the restrictions previously specified in this section, modifications are allowed to any internal element of the engine with the following exceptions:

Stroke length must measure within +/-0,2mm of the homologated specification with the engine in the assembled condition.

Bore diameter must not exceed the homologated specification maximum.

15. INTERCONTINENTAL A JUNIOR (ICA JR) CLASS PREPARATION

Inspected according to CIK-FIA regulations.

16. KF1, KF2, KF3, KF4 CLASS PREPARATION

Inspected according to CIK-FIA regulations.

17. ROTAX MAX SENIOR, ROTAX MAX JUNIOR AND DD2

The Rotax Max Senior, Rotax Max Junior and DD2 classes will be inspected according to the Canadian Rotax Max Challenge Regulations.

18. ALL OTHER CLASSES

Any other class not specified in these regulations will inspected according to the official and accepted regulations published for that class or as specified in the Supplementary Regulations. Examples include World Formula, F1-K and ROK Cup.

19. TWO CYCLE FUEL AND OIL REQUIREMENTS

19.1. 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.

19.2. Fuels Required for Certain Classes

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

a) **Formula A, ICA, ICA JR, ICC, KF1, KF2, KF3, KF4, KZ1, KZ2:** 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.

b) **All other Two-Cycle classes:** The usual acceptable fuel for these classes shall be **PREMIUM** UNLEADED gasoline **with a minimum octane rating of 91** 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.

19.3. 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
Blendzall Castor	Motul **GP2T**	Elf

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.

Any class may have a brand of oil specified for use in the Supplementary Regulations.

20. GENERAL HONDA FOUR-CYCLE ENGINE REGULATIONS

The Four-Cycle **Honda** 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 **eligible** 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.

21. AUTHORIZED HONDA FOUR-CYCLE CHANGES AND ADDITIONS

21.1. 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, cast **or molded** material. No welding is allowed anywhere on the adaptor. **If the material used is non-metallic, metal sleeves must be installed into the mounting holes, of the same length as the width of the mounting flange to avoid compression of the flange.**

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.

21.2. 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.

21.3. Fasteners

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

b) Any bolt except the carburetor throttle plate retaining bolt may be replaced with a stud or socket head cap screw.

c) Locknuts must be installed appropriately as tight as a non-locking nut.

21.4. 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.

21.5. 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 fastened to the engine using only 1 or 2 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.

21.6. 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.

21.7. 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**(s)** is 0.125” as raced.

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.

21.8. 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.

21.9. Coatings

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

21.10. Recoil

a) On all Honda engines, an unaltered, standard utility recoil and starter cup from GX140, GX160/K-1, or GX160/T1, or GX200 utility engines or an unaltered, aftermarket, mass produced, non-Honda bolt-on recoil and starter cup of similar appearance (especially air inlet space area) must be entirely in place during competition, and must be the only method of starting the engine.

Any recoil assembly determined by the Technical Inspector to be ineligible will not be allowed to compete and/or pass post-race Technical Inspection.

21.11. 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.

21.12. Switch

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

A second, small, functioning, toggle switch may be installed on/in the front fairing panel or on the steering column support portion of the main frame in all classes.

21.13. Cooling Fan

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

22. 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 **other known stock heads. Minor as cast deviations are allowed. Minor "runaway" grinding is permitted.**

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 must be of appropriate Honda manufacture and be unaltered. Shimming of valve springs 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, T-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.**

A K-1, **T-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, **which may be aftermarket.** 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 throttle plate retaining screw may be replaced by a fuel shut off retaining screw (Part #93500-03008-OG). The threaded end of this screw must protrude through the throttle shaft by at least one thread.

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.

u) **Block and Crankcase Integrity:** Blocks must be original GX-120, 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

The crankcase may only be vented using the normal, stock, unaltered methods except for the allowance of the pulse hole fitting. The crankcase cannot be vented additionally through the plugged governor apparatus, the side cover gasket(s), main seals, valve cover gasket, valve cover check valve, or any other means.

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

a) **Bore: 2.677”** (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 head: 21.00cc min. as raced.

GX160/T-1 head (ZOT): 20.00cc min. as raced.

TK-1 head: 20cc. min. as raced.

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

2.880” 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" - 0.081"
Coil Diameter: 0.790" - 0.815"

l) **Valve Springs Spec B:** Free length, post race: 1.450" maximum
Wire Diameter: 0.068" - 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: 1.174"** 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: **0.408"** GO – **0.432"** 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.

w) **Phenolic Spacer:** Must be stock GX-160/K-1 or GX-160/T-1. The fuel line guide may be trimmed to facilitate inspection. The spark plug wire guide portion may be removed.

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:** ZL0 head: **29.0** cc. min. as raced.

Z0V head: 27.0 cc. min. as raced.

g) **Head Height:** Measured from the head gasket surface to the unaltered valve cover surface: **2.880”** 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: 1.174”** 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, **0.712"** maximum.

Inside diameter - 0.557" maximum.

Length: 2.120" minimum.

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

Jet: 0.035” NOGO

Emulsion Tube heights: **0.436”** GO – **0.462”** NOGO

California Carburetors: All rules regarding California emissions carburetors for GX-160/K-1 and GX-160/T-1 will apply.

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

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 EXHAUST SYSTEMS

25.1. 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 intact STOCK gasket properly installed.

d) Exhaust gases from the engine may only exit through the outlet opening of the muffler **and the OEM sized, unaltered drain slot**. Leakage is acceptable from 1/4 or less of the circumference of the center orifice of the intact, unaltered, stock exhaust gasket.

25.2. 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 and within the thickness of the flange.

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.

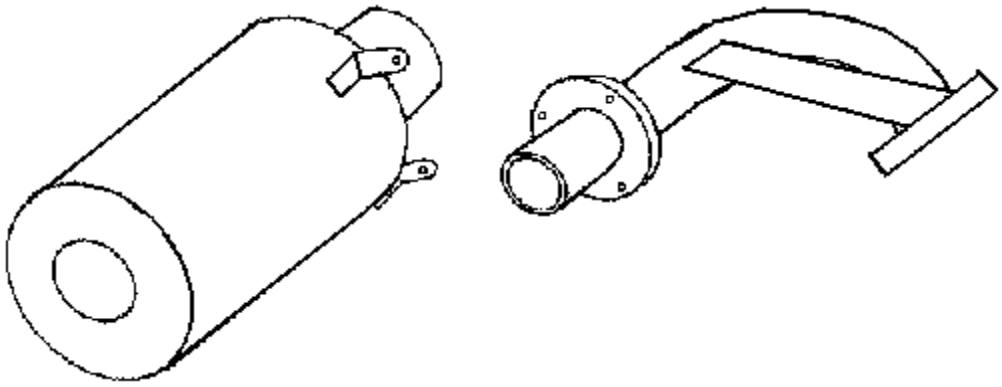
h) Any support or brace must not make any part of the system out of specification.

The header may have a brace/support welded to the outside of the header tubing after the bend area, and then welded to either the flange, another location on the tubing before the bend area, or bolted to the engine, to reinforce the bend area.

The silencer must have a support brace clamped to the silencer and 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.

One washer (2.5" maximum OD, 0.150" maximum width) with utilized attachment holes may be welded around the pipe after the bend area to facilitate the addition of safety wire and/or springs to further attach the silencer to the header. (Installed one inch or more from the outer end of the header, it may also be used as a distance locator for the silencer). Tabs may be welded to the silencer in an appropriate location to utilize the washer on the header. The number of spring/safety wire attachment holes is limited to a maximum of 3.

The following illustration displays the intent of the regulation.



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 and silencer is not allowed. The mandatory heat protective wrapping of the header must be securely fastened to prevent loss. The silencer may be heat protective wrapped. 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 **or modification** within the engine flange thickness.

t) A properly installed, completely intact, uniform thickness exhaust gasket(s) with a total thickness of 0.125" or less must be used and remain between the header and the exhaust port of the engine.

The header flange face must be relatively flat, and the affixation nuts and studs must be tight.

u) **Kinked, cracked, or broken headers:** A header that is broken, or has a kink or a crack in the tubing may be replaced at any time during the event before the final race session under the scrutiny of a Technical official, and must be resealed. The entrant will NOT lose their starting position for the next session or the final race.

A kink is defined as a sharp deflection of the normal configuration caused by contact during an on-track session, and does not include an oval bend manufactured into the header or a manual bend.

A cracked header is defined as one that contains a crack but still maintains its original configuration and specification.

A kinked or cracked header must still pass post-race Technical Inspection.

A kinked header is exempt from the bend area diameters in regulation 24.b) in the actual kinked area only, and from regulation 24.j) if bent upward.

A cracked header must still be in a condition that will pass all Technical Inspection. **If not, the entrant is excluded.**

A broken header will pass post-race Technical inspection provided that the entire header/silencer is still attached to the Kart by the support brace and/or the tether, AND the entire exhaust system is in compliance with the Regulation.

26. HONDA FOUR-CYCLE CAMSHAFT SPECIFICATIONS

26.1. 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

26.2. GX-200 Camshafts

Lobe heights:	Exhaust: 1.085” min. – 1.095” max. Inlet: 1.085” min. - 1.092” max.
Overlap:	**22** – 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:	**0.230”**	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

27. HONDA FOUR-CYCLE CARBURETOR

27.1. 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”.

27.2. Carburetor Jet Sizes

Main jets can be drilled but must conform to the appropriate NOGO sizes.

GX160/K-1/T-1: 0.031” NOGO.

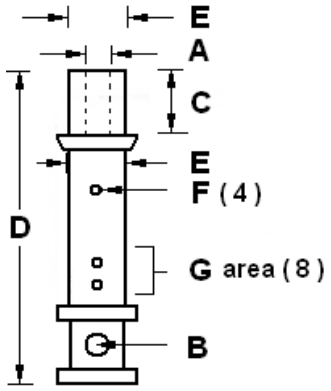
GX200: 0.035” NOGO.

GX120: #60 with the orifice being 0.024” NOGO.

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

The GX-140 emulsion tube is the specified emulsion tube.

The part number is 16166-ZE1-005 for all Honda engines except the GX120. The tube may be new or old, must conform to the dimensions listed and must comply with the configuration of a standard, new emulsion tube.



A: 0.073" NOGO
B: 0.081" NOGO
C: 0.202" max.
D: 1.098" min.- 1.112" max.
E: 0.155" min. - 0.158" max.
F: 0.012" GO - 0.020" NOGO
G: 0.024" GO - 0.031" NOGO

28. HONDA FOUR-CYCLE INSPECTION PROCEDURES

28.1. 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 NOGO should not even start to go into either end of the jet. 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).

28.2. Combustion Chamber Volume

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

28.3. 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.

28.4. 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.

28.5. Piston Top

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

28.6. 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%).

28.7. 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 **TWICE** 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.

29. 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.

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

Four-cycle classes are required to use REGULAR UNLEADED gasoline **with a minimum octane rating of 87** obtained from a specified location for each event. The source shall be stated in the Supplementary Regulations and publicized at registration.

31. TECHNICAL INSPECTION PROCEDURES

31.1. 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.

31.2. 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 a **minimum of 2 minutes** for all air bubbles to rise to the surface **and the fluid level to stabilize, before starting the test.**

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 and close the stopcock. Wait approximately 30-60 seconds for the fluid level in the burette to level out before re-opening the stopcock slowly to allow the remainder of the specified amount of fluid into the chamber. In 4-cycle engines, between fillings, the 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.

31.3. Measuring Engine Displacement

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

31.4. 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.

31.5. 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.

32. FUEL AND OIL TESTING

32.1. 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.

32.2. 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.

32.3. Testing Four Cycle Fuel and Oil

a) Testing and ensuring conformity of Four Cycle Fuel and Oil:

The Technical Delegate or Inspector may direct the Grid Marshall to order the start of all engines on the grid up to five (5) minutes before the class is allowed on the track.

For any qualifying session any competitor not present or not starting their engine at the appointed time, will start the first racing session at the rear of all other entrants.

For any racing session any competitor not present or not starting their engine at the appointed time, will start that racing session at the rear of all other entrants.

The Technical Delegate or Inspector may require the change of fuel in a competitor's fuel tank at any time during the event, including while the competitor is on the pre-grid or grid.

The existing level of fuel will be marked on the tank. The tank will be emptied of all fuel by the Technical Delegate or Inspector into a container and refilled from a container with the event or series specified fuel to the original level.

b) 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. An insufficient, unavailable sample of fuel to allow for the Digitron test in the test bottle is cause for exclusion.

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. The inspector may also compare competitor's fuels to each other. All should be within 20 points of each other on the Digitron meter.

c) 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.

32.4. 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.