

# 2016 Rules and Regulations

## Classes

Adult Wing | Junior II Wing | Junior I Wing

641-204-9551

1102 E 8<sup>th</sup> ST S Newton IA 50208

3-22-16

Amended 04/16/16

## Cage Requirements

- Base Frames must be of kart configuration. Not to exceed 90" in overall length.
- Kart not to exceed 350 lbs. including full tank of gas. *No exceptions.*
- Cage must be constructed of 1" round tubing and a minimum wall thickness of .083 mild steel or chrome molly (no square tubing).
- Hood shall be mounted to cage in such a way as to allow for cage to be removed without removing hood.
- Cage must be mounted in and to spring-loaded receivers with quick release pins.
- Receivers must be mounted and bolted to kart frame at front Nerf Bar mounts and rear frame rails behind rear axle cassettes.

## General Requirements

- Duplicate numbers must include a letter. Must be a minimum of 6".
- Numbers must be displayed on contrasting backgrounds.
- Track official's' decision is final.
- Tires are track/series option.
- All drivers under the age of 18 must provide a notarized minor release form to the scorekeepers. A new form is required for each season. In addition, when parent or guardian is not in attendance, drivers must provide a designated guardian form. *A new form is required for each race.*
- Fuel: All Clone class must run pump gas at only 87 Octane - no additives.

- Karts will be tested for fuel requirements and must meet the tests above.
- Brakes must be in good working condition at all times.
- All karts must have seat belts and shoulder harnesses.
- Shoulder harnesses must be mounted in a way to restrict forward body motion.
- Shoulder belts may be mounted to seat if seat was originally designed and built by the manufacturer and intended for this application.
- Lap belts should be mounted on Kart frame or seat if seat is designed and built by the manufacturer and intended for this application.
- Cut or frayed seat belts will not be allowed. *No exceptions.*
- Approved neck braces and arm restraints are mandatory.
- Arm restraints must be attached to lap belt and worn below the elbow.
- Seat will be securely mounted to the frame of Kart at four points. No excessive holes.
- Kill switches are mandatory and must be within the driver's reach.
- No sharp or protruding objects are allowed on any part of the kart.
- Fuel line location cannot be closer than 2" to any part of the exhaust system at any time and shall not be above the exhaust. If closer than 2", fuel line must be insulated. Fuel line must have ample slack for cage movement. Must be petroleum grade fuel line.
- Fuel tank location: Must be mounted on the inside of the cage in the kart manufacturer's original location. Fuel tank cannot be mounted on engine.
- open clutch rule.
- No loop pipes allowed. All pipes must stay within the rear axle and point down or must return into tail. All pipes must be approved by track promoter. All pipes must use an RLV-91-L muffler.
- Pulse-type fuel pump is required.

### **Wing Dimensions (All Classes):**

- Center Panel 36" Long X 32" Wide
- Right Side Panel 40" Long X 14" Wide
- Left Side Panel 40" Long X 20" Wide
- All Dimensions Are + OR - 3"

### **Arm Restraints:**

- All winged karst must use arm restraints and must be attached to a five point harness at appropriate factory position.

#### **Tires:**

- Treaded tires are required
- **Right rear must durometer on tread face at 45 or higher before the race.** Requested Amendment 03/31/16 **(Change)** lower durometer on tread from 55 to 45

#### **Wheels:**

- All four wheels must have 6 Inch rims no wider than 10.5 Inches

## **Adult Wing: Engine Specifics**

- BP (Builder Prepared) 6.5 OHV – Fuel Pump Gas ONLY
- Pulse-type fuel pump Is required.
- Approved Engine: 6.5 OHV 196cc clone engine modified only according to BP OHV Engine Spec.

### **Specifics Sheet for BP 6.5 OHV CLASS Adult and Junior II**

#### **Description:**

- Single cylinder, 2-valve overhead 4-cycle engine.
- No aftermarket coatings of any type are permitted on any part of the engine (exception: blower housing and shrouds).

#### **Cylinder Head Requirements:**

- Stock cylinder head only.
- Machining of gasket surface is allowed.
- No addition of material in ports or to cylinder head allowed.
- Porting and / or grinding is not permitted.
- Valve seats may have two angles, 45° valve face and 30° top relief.
- Inside diameter of valve seats must be stock (Into .897” max ID and Ex .862” max ID).
- Valve seats must appear stock and must be in stock position and depth.
- All four stock head bolts are required.

- Head gasket's may be after market, must be of stock configuration, and gasket thickness non-tech.
- Depth check between the valves, front-to-back and side-to-side may not vary by more than .005" max .
- Cylinder head guide plate for pushrods must remain stock.
- No other alterations to the stock head are permitted.

#### **Bore and Stroke:**

- Stock bore is 2.685" and may be over bored to 2.718" Stroke is 2.123" +/- .005".
- Connecting Rod: Stock or Billet aluminum rods, with or without bearing inserts allowed.
- No titanium rods allowed.
- Rod length is a non-tech item.

#### **Combustion Chamber Volume:**

- 25 cubic centimeter minimum, with piston at TDC, using prescribed procedure. The Liquid CC check is the official check (*If the engine fails the CC liquid check at any time during the tech procedure it must be called illegal*).

#### **Carburetor/Intake Requirements:**

##### **Adult Wing:**

- Stock hay or RUI\*ING carb. Ventura .625" NO-GO.
- Rear carb bore .751" to be checked with NO-GO gage, stock carb bore finish, throttle shaft .115" minimum. Butterfly .037" minimum.
- Air filter adapter of 1.375" max length allowed. No air rams.
- Pulse-type fuel pump is mandatory. Fuel pump must be pulsed from either the crankcase or the valve cover.
- Black phenolic carb insulator must be used. Choke assembly may be removed.
- Jets, air bleed jets, and emulsion tubes are non-tech.
- Throttle shaft, washer, and butterfly must be stock and must be present. Butterfly screw non-tech.
- Stock intake runner gasket configuration only.
- No other alterations are permitted.

#### **Ignition system:**

- Ignition timing is non-tech.
- Stock ignition module only.
- No modifications of any type allowed.
- Spark plug connector must be stock as from factory.

### **Piston Requirements:**

- Must be stock dished piston with no modifications.
- Oversize Clone or Honda ZOT dished piston is allowed up to .035" oversize.
- Rings must appear stock and all rings must be installed.
- Piston may not pop out above cylinder deck.

### **Valve Train:**

- Stock valve-train only in stock configuration except: Any single valve springs and valve spring shims are allowed; Any 5.5 mm stem steel valve (no stainless) that uses stock retainers allowed.
- Intake valve head Max OD .982" +/- .005" and Exhaust valve head Max OD .945" +/- .005".
- Valves may have three angle cut, 30, 45, 60 Deg.
- No knife edging of valves (1mm min. margin).
- Valve length is non-tech.
- No additional support for rocker studs permitted.

### **Camshaft Requirements:**

- Stock camshaft cores only, fez-spin assay must remain as stock.
- Duration check for intake and exhaust lobes (taken off pushrod).
- Intake duration of 248 degrees at .050 lift/107 degrees at .200 lift.
- Exhaust duration of 247 degrees at .050 lift/116 degrees at .200 lift.
- Max lift at the valve retainers, intake .238" and exhaust .242" taken on valve spring retainer with zero lash (to achieve zero valve lash for checking running lift, preload dial indicator by .001".)

### **Crankshaft Requirements:**

- Stock, factory crankshaft only with stock, factory timing gear in factory location.
- Aftermarket steel main bearings of non-self-aligning type, with or without seal are allowed.

- No ceramic bearings.
- Crankshaft Journal Diameter is 1.180", 1.168" minimum.

### **Block Requirements:**

- Stock Block, as cast and produced with no alterations or modifications other than those specifically permitted.
- Block head mating surface may be machined, however, no piston pop out is allowed.
- Blocks may *not* be welded for repairs.
- No addition of material to block (i.e. welding, job weld, etc.).
- All bolt bosses in block may be drilled and tapped for repairs or other uses.
- Additional side cover gaskets as required for crankshaft thrust are permitted.
- All parts associated with the governor and the low oil sensor may be removed, plugging any associated holes.
- Replacement of cylinder sleeve is allowed but must meet bore specifications of 2.718 +/- .005" Amended 04/16/2016

### **Flywheel:**

- Approved SFI certified billet aluminum flywheel only.
- No machining or alteration of any kind allowed.
- Minimum weight for flywheel is 3.3 lbs.
- A timing key or no key at all may be used.
- A flat washer or spacer may be used, And is recommended, between the flywheel and the nut.
- Handheld electric starter may be used, but compression release mechanism must remain on Camshaft.
- Current Approved flywheels: ARC 6619, ARC 6618, Recessing Flywheels RSP-13-075, Freewheel NF- S1 & RSP-13-077, Freewheel F-S1 Dyno flywheel DC-PVL FW.

### **Header and Muffler Requirements:**

- Header Pipe Length: Minimum 18"- Maximum 22".

- All pipes must use a B91XL Muffler (Round holes unaltered) a small hole in the end (bottom) allowed for safety wire. Safety wire must be present.
- Header must be securely wrapped from flange to muffler prior to the race.
- Exhaust pipe must be double netted or safety wired and silencer must be supported by clamped on brace to secure it in place
- +/- .005 or 2 degrees on all measurements to allow for gauge variances and wear

## Junior I Wing: Engine Specifics

- BOX STOCK 6.5 OHV Description: Single cylinder, 2 valve, OHV 4 cycle engine. (Gas Only)
- Must run an ARC green .425 plate
- Combustion chamber volume: 26.5 cubic centimeter minimum, with piston at TDC, using prescribed procedure.
- The Liquid CC check is the official check (If the engine fails the CC liquid check at any time during the tech procedure it must be called illegal)

### Cylinder Head Requirements:

- Must be OEM casting only.
- All cylinders heads must be the "JT" 4 bolt valve cover cylinder head (6.5hp series) only.
- Porting and / or grinding are not permitted.
- Valve seats are two angles 45 degrees valve face and 30 degrees top relief.
- Intake seat maximum ID .897", Exhaust seat maximum ID .862".
- Outside face of valve may not be below floor of combustion chamber (i.e. don't sink the valves).
- Stock head bolts only, must have all four.
- Head gasket/s may be after market, must be of stock configuration, gasket thickness is a non-tech item.

- Depth check between the valves, front to back and side to side may not vary by more than .005" max.
- No copper or aluminum gaskets allowed.
- Any stock configuration exhaust gasket allowed, no other sealer.

### **Block Requirements:**

- Stock cylinder bore is 2.685" max.
- Stroke is 2.123" + .010" or - .005".
- No piston pop out allowed.
- Matting surface finish of block and cylinder head is a non-tech item, surfacing of both to correct gasket failure and meet cc check is allowed (however, no piston pop out is allowed).
- May use 2 side cover gaskets of stock configuration.
- Block must remain stock as produced.
- Stub for governor may be removed and hole plugged.
- No machining of block allowed.
- Welding to the block shall be for rod damage repair only and may not constitute a functional modification.
- Side cover bolts are non-tech.

### **Carburetor requirements:**

- Huayi OR RUI\*ING model carb only.
- Carb to intake sealer is gasket only, no other sealer allowed.
- Choke must be as supplied from factory, but may be fixed to stay in open position.
- Venturi .615" NO-GO.
- Rear carb bore .751" NO-GO.
- Main fuel jet .042" NO-GO.
- Low speed idle jet is a non-tech item.
- Stock emulsion tube must be used and unaltered, .066" max ID (no pass through).
- Side holes in E-Tube, 4 holes max in bottom section and 20 holes max in top section.
- Minimum E-Tube length 1.092".
- Throttle shaft - .115" minimum.



- Butterfly - .037" minimum.
- Aftermarket air filter adapter allowed (max length of 1.375).

### **Valve Train:**

- Stock valve cover only with any stock configuration gasket, no sealer.
- Factory stock rocker arms 1:1 ratio and push rods only.
- Stock valves only 45 degree angle on both valves.
- Intake valve Max OD .982" +/- .005"
- Exhaust valve Max OD .948" +/- .005", no modifications allowed.
- Only box stock valve springs. (Installed Height for valve springs .815", must be checked by using the .815" spring must go gauge with retainer seal in place on intake exhaust valve if used.)
- Prescribed check procedure as follows – remove valve spring, reinstall spring retainer, insert .815" must go gauge in spring location.
- Gauge must go in both locations.
- Intake and exhaust with any allowed retainers in place, as raced, during check procedure.
- Max wire diameter on spring wire is .071" with a maximum tension of 10.8 lbs. at a height of .850".
- Lash cap on exhaust valve only. Valve stem seal allowed on intake and exhaust valve, maximum lip thickness of .027".
- Minimum thickness of intake valve spring retainer .230", exhaust valve spring retainer .250".
- BS lifters only, no modifications allowed.

### **Ignition system:**

- Box stock system only- must be unaltered.
- Kill switch and low oil sensor may be disabled and removed.
- Flywheel: Approved SFI certified aluminum flywheel only.  
No alterations of any type allowed.
- Timing and flywheel key is non-tech.
- Piston and Rings: Must be unaltered box stock only.
- No machining of piston and rings allowed.

### **Connecting Rod:**

- Stock rod only.
- No machining of any type allowed.
- Stock rod bolts only.

### **Crankshaft Requirements:**

- Box stock crankshaft required.
- Machining, polishing, addition of material or other alteration of crankshaft is prohibited.
- Stock factory timing gear mandatory and must be installed in original location.
- Crankshaft journal diameter is 1.180"max - 1.168" min.

### **Camshaft Requirements:**

- Stock camshaft cores only, ez-spin assy must remain as stock.
- Cam lobe base circle diameter .865" -.005"/+.010"
- Duration check for intake and exhaust lobes (taken off pushrod).
- Intake duration of 219 degrees at .050 lift/86 degrees at .200 lift.
- Exhaust duration of 222 degrees at .050" lift/97 degrees at .200" lift.
- Max Intake lift on cam .225" – Min .215"lift taken at the push rod. Max
- Intake lift at the valve .238" taken on valve spring retainer with zero lash.
- Max Exhaust lift on cam .232" – Min .222" lift taken at the push rod.
- Max Exhaust Lift at the valve .242" taken on valve spring retainer with zero lash.

### **Blower Housing Assembly:**

- Pull starter must be present and remain stock.
- Pull starter may be rotated for a better crank angle.

### **Header and Muffler Requirements:**

- Silencer must be a ( B91XL round hole muffler).
- Exhaust pipe must be double nutted or safety wired and silencer must be supported by clamped on brace to secure it in place.
- No modifications allowed.
- Muffler will be teched against stock B91XL

### **Fuel Tank Requirements:**

- Stock tank must be removed.
- Floor mount only, no gravity fed- tanks

### **Fuel Pump Requirements:**

- Fuel pump must be pulsed from either the crank case or the valve cover.
- You may install a flat metal plate in the original tank location for the purpose of mounting the throttle linkage and fuel pump.

### **Clutches:**

- Open clutch rule any disc or drum clutch is allowed.
- +/- .005 or 2 degrees on all measurements to allow for gauge variances and wear.

## **Junior II Wing: Engine Specifics**

- BP (Builder Prepared) 6.5 OHV – Fuel Pump Gas ONLY
- Pulse-type fuel pump is required.
- Must Run Blue plate .550 ARC restrictor.
- Approved Engine: 6.5 OHV 196cc clone engine modified only according to BP OHV Engine Spec.

### **Specifics Sheet for BP 6.5 OHV CLASS Adult and Junior II**

#### **Description:**

- Single cylinder, 2-valve overhead 4-cycle engine.
- No aftermarket coatings of any type are permitted on any part of the engine (exception: blower housing and shrouds).

#### **Cylinder Head Requirements:**

- Stock cylinder head only.
- Machining of gasket surface is allowed.
- No addition of material in ports or to cylinder head allowed.
- Porting and / or grinding is not permitted.

- Valve seats may have two angles, 45° valve face and 30° top relief.
- Inside diameter of valve seats must be stock (Into .897" max ID and Ex .862" max ID).
- Valve seats must appear stock and must be in stock position and depth.
- All four stock head bolts are required.
- Head gasket/s may be after market, must be of stock configuration, gasket thickness non-tech.
- Depth check between the valves, front-to-back and side-to-side may not vary by more than .005" max .
- Cylinder head guide plate for pushrods must remain stock.
- No other alterations to the stock head are permitted.

#### **Bore and Stroke:**

- Stock bore is 2.685" and may be over bored to 2.718" Stroke is 2.123" +/- .005".
- Connecting Rod: Stock or Billet aluminum rods, with or without bearing inserts allowed.
- No titanium rods allowed.
- Rod length is a non-tech item.

#### **Combustion Chamber Volume:**

- 25 cubic centimeter minimum, with piston at TDC, using prescribed procedure. The Liquid CC check is the official check (*If the engine fails the CC liquid check at any time during the tech procedure it must be called illegal*).

#### **Carburetor/Intake Requirements:**

##### **Junior II Wing:**

- Stock hay or RUI\*ING carb. Ventura .625" NO-GO.
- Rear carb bore .751" to be checked with NO-GO gage, stock carb bore finish, throttle shaft .115" minimum. Butterfly .037" minimum.
- Air filter adapter of 1.375" max length allowed. No air rams.
- Pulse-type fuel pump is mandatory. Fuel pump must be pulsed from either the crankcase or the valve cover.
- Black phenolic carb insulator must be used. Choke assembly may be removed.
- Jets, air bleed jets, and emulsion tubes are non-tech.

- Throttle shaft, washer, and butterfly must be stock and must be present. Butterfly screw non-tech.
- Stock intake runner gasket configuration only.
- No other alterations are permitted.

#### **Ignition system:**

- Ignition timing is non-tech.
- Stock ignition module only.
- No modifications of any type allowed.
- Spark plug connector must be stock as from factory.

#### **Piston Requirements:**

- Must be stock dished piston with no modifications.
- Oversize Clone or Honda ZOT dished piston is allowed up to .035" oversize.
- Rings must appear stock and all rings must be installed.
- Piston may not pop out above cylinder deck.

#### **Valve Train:**

- Stock valve-train only in stock configuration except: Any single valve springs and valve spring shims are allowed; Any 5.5 mm stem steel valve (no stainless) that uses stock retainers allowed.
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- Valves may have three angle cut, 30, 45, 60 Deg.
- No knife edging of valves (1mm min. margin).
- Valve length is non-tech.
- No additional support for rocker studs permitted.

#### **Camshaft Requirements:**

- Stock camshaft cores only, fez-spin assay must remain as stock.
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- Max lift at the valve retainers, intake .238" and exhaust .242" taken on valve spring retainer with zero lash (to achieve zero valve lash for checking running lift, preload dial indicator by .001".)

### **Crankshaft Requirements:**

- Stock, factory crankshaft only with stock, factory timing gear in factory location.
- Aftermarket steel main bearings of non-self-aligning type, with or without seal are allowed.
- No ceramic bearings.
- Crankshaft Journal Diameter is 1.180", 1.168" minimum.

### **Block Requirements:**

- Stock Block, as cast and produced with no alterations or modifications other than those specifically permitted.
- Block head mating surface may be machined, however, no piston pop out is allowed.
- Blocks may *not* be welded for repairs.
- No addition of material to block (i.e. welding, job weld, etc.).
- All bolt bosses in block may be drilled and tapped for repairs or other uses.
- Additional side cover gaskets as required for crankshaft thrust are permitted.
- All parts associated with the governor and the low oil sensor may be removed, plugging any associated holes.
- **Replacement of cylinder sleeve is allowed but must meet bore specifications of 2.718 +/- .005" Amended 04/16/2016**

### **Flywheel:**

- Approved SFI certified aluminum flywheel only.
- No machining or alteration of any kind allowed.
- Minimum weight for flywheel is 3.3 lbs.
- A timing key or no key at all may be used.
- A flat washer or spacer may be used, And is recommended, between the flywheel and the nut.
- Handheld electric starter may be used, but compression release mechanism must remain on Camshaft.

- Current Approved flywheels: ARC 6619, ARC 6618, Recessing Flywheels RSP-13-075, Freewheel NF- S1 & RSP-13-077, Freewheel F-S1 Dyno flywheel DC-PVL FW.

### **Header and Muffler Requirements:**

- Header Pipe Length: Minimum 18"- Maximum 22".
- All pipes must use a B91XL Muffler (Round holes unaltered) a small hole in the end (bottom) allowed for safety wire. Safety wire must be present.
- Header must be securely wrapped from flange to muffler prior to the race.
- Exhaust pipe must be double netted or safety wired and silencer must be supported by clamped on brace to secure it in place
- +/- .005 or 2 degrees on all measurements to allow for gauge variances and wear

**Note: All clone classes must run pump gas (87 octane). Approved flywheels are mandatory in all clone classes.**

### **Class: Junior I Wing**

**Class Weight: 260 lbs.**

**Age Class : 6 Years To 12 Years**

**Engine: 6.5 OHV clone**

**Green Plate .425 ARC restrictor**

### **Class: Junior II Wing**

**Class Weight: 300 lbs.**

**Age Class: 12 Years to 15 Years**

**Engine: 6.5 OHV clone BP**

**Blue Plate .550 ARC restrictor**

### **Class: Adult Wing**

**Class Weight: 390 lbs.**

**Age Class: 16 And Older**

**Engine: 6.5 OHV Clone BP**

