

## **OPEN CLASS**

450 lbs

Motor: Any single cylinder with a maximum 550cc. No big street type motors, i.e., 650, 750, 1100, etc. If in doubt, ask.

## **125**

125cc CLASS 375 lbs

250cc 2/4 Stroke 420lb

No BIG BORE KITS not to exceed 135cc

## **Adult Wing – Box Stock – 390 Clone**

6.5 OHV – Fuel Pump Gas ONLY – Approved Engine: 6.5 OHV 196cc clone engine- No Kohlar No Honda No Predicators – Only the original 196cc Clone

### ENGINE SPEC SHEET FOR 6.5 OHV CLASS

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: Must be OME casting only. All cylinders heads must be the “JT” 4 bolt valve cover cylinder head (168-f 6.5hp GX 200 series) or the TG-1 head only. Porting and /or grinding are not permitted. Valve seats may have up to three angles, 45 degree valve face and 30 degrees top relief and 60 degree bottom relief. Cutting of the valve seats allowed to ensure proper seal. Intake seat maximum ID .897”. Exhaust seat maximum ID .862”. Outside face of valve may not be below four of combustion chambers (ie don’t sink the valves) Stock head bolts only, must have four. Head gasket/s may be aftermarket, must be of stock configuration, gasket thickness is a non tech item, sealer allowed to ensure proper seal. Depth check between the valve, front to back and side to side may not vary by more than .005 inch max. No cooper or aluminum gaskets allowed. Any stock configuration exhaust gasket allowed, sealer permitted, Header may also be run without gasket, sealer only. Allen head bolts permitted on header to head. The use of aftermarket FLANGED bolts of similar OEM design (head size, diameter, length and thread length/pitch)allowed as replacements for stock head bolts. No studs allowed. Breather hole on valve cover may be tapped with 1/4” pipe tap to accommodate breather fittings, no oversize drilling allowed

Bore and Stroke: Stock bore is 2.685" and may be over bored to 2.718" Stroke is 2.123" +.010"-.005".

Connecting Rod: 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: Stock Huayi or RUI\*ING carb. Venturi .625" NO-GO. Rear carb bore .751" NO-GO. Carb bore finish, non tech. 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 bleeds 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. One extra gasket may be used with restrictor plates. No other alterations are permitted.

Ignition system: Ignition timing is non tech. Stock ignition module only. No modifications of any type allowed. Sparkplug 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 5.5mm stem steel valve (including stainless) that uses stock retainers allowed. Intake valve head Max OD .982" +/- .005" and Exhaust valve head Max OD .945" +/- .005". Valves must be one angle only, 45°. No knife edging of valves (1mm min. margin). Valve length is non-tech. No additional support for rocker studs permitted. Champion rocker arm assembly and valve cover allowed.

Camshaft Requirements: Stock camshaft cores only, ez-spin assy 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.

Crankshaft Requirements: Stock, factory crankshaft only with stock, factory timing gear in factory location. No modifications to crankshaft allowed. 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, jb 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. Side cover bolts are non tech

Flywheel: Approved SFI certified billet aluminum flywheel only. No machining or alteration of any kind allowed. Minimum weight for flywheel is 3.3 lbs. Any 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, Racing Flywheels RSP-13-075  
Revwheel NF- S1 & RSP-13-077 Revwheel F-S1.

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

+/- .005 or 2 degrees on all measurements to allow for gauge variances and wear.

## **RBOX**

Restrictor Box Stock ENGINE SPECIFIC TECH SHEET FOR: BOX STOCK 6.5 OHV

Description: Single cylinder, 2 valve, OHV 4 cycle engine.(Gas Only)

Must run a ARC green .425 plate

Restrictor Box Stock : age 5 to 10 (All exceptions must be approved by promoter).(425 restrictor 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 (168-f 6.5hp GX 200 series) or the TG-1 head 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 four. Head gasket/s maybe 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 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 only both valves, Intake valve Max OD .982" +/- .005" and 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 an 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 retainer .230", Exhaust retainer .250". BS lifters only, no modifications allowed.

Ignition system: Stock Box Stock system only and must be unaltered. Kill switch and low oil sensor may be disabled and removed. Flywheel: Box Stock flywheel only (5lbs 4oz minimum) including plastic fins. BSFW-1 steel billet flywheel allowed on 1/1/12 and mandatory on 7/1/12, same weight check as stock flywheel. 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 Box Stock rod only. No machining of any type allowed. Stock rod bolts only.

Crankshaft Requirements: Stock 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 pushrod. 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 pushrod. 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 or gravity fed- Must be approved by promoter

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: Stamped steel drum shoe type clutches only, No machined Billet drums allowed.  
No disc clutches allowed.

+/- .005 or 2 degrees on all measurements to allow for gauge variances and wear.