

AKRA BOX STOCK/6.5 CLONE 2011 RULES
ENGINE SPECIFIC TECH SHEET FOR: BOX STOCK 6.5 OHV

Description: Single cylinder, 2 valve, OHV 4 cycle

Important Note: All parts must be Box Stock factory production parts unless otherwise specified in this rules manual. No machining or alteration of parts is allowed unless specifically noted. All parts will be subject to a comparison to a know Box Stock part (when performing a "stock part" comparison check it is recommended to use a + /- .005" tolerance). Engine will be teched as raced. There will also be a \$200 claiming rule in place for this engine(Track or Series Option). Refusing to accept the claimer will result in immediate disqualification of competitor along with forfeiture of any points earned to date in class. Competitor will also not be allowed to compete any longer in that class.

Combustion chamber volume: 26.5 cubic centimeter minimum, with piston at TDC, using prescribed procedure.

Cylinder Head Requirements: Must be OEM casting 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". Stock head bolts only, must have four. Head gasket/s maybe after market, must be of stock configuration, 2 gaskets permitted with a total minimum thickness of .008" and maximum of .020". 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, sufacing of both to correct gasket failure and meet cc check 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.

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 .019" NO-GO. Stock emulsion tube must be used and unaltered, .066' max ID (no pass through). 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 .985" +/- .005" and Exhaust valve Max OD .948" +/- .005", no modifications allowed. Only Box Stock valve springs. 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 only on Intake valve, maximum lip tickness of .027". Maximum thickness of Intake retainer .230" , Exhuast retainer .250" (both +/- .005 tolerance). 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 4 oz minimum) including plastic fins. No alterations of any type allowed. Maximum ignition timing advance is 18° BTDC when a straight edge placed on the outside of the right-hand coil leg is just touching the right-hand edge of the metal magnet cover of the flywheel. 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(+/- 2 degrees for wear and gauge variances). 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: Any single stage, one piece header made from .750" OD max and .635" ID max. steel tubing allowed, with the RLV Mini B-91 Silencer (**Optional 12-1-2010 and mandantory 3-1-2011**) installed at the end of pipe. The B-91 Silencer must be tread fitted to the pipe end. The entire exhaust pipe including the muffler is 15" max length and 10" min length.

Fuel Tank Requirements: Floor Mounted fuel tank mandatory (stock tank must be removed). Pulse type fuel pump allowed.

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.

RLV Mini 91 Silencer Requirements: Part # 4117 Overall Length 5.470" minimum +/- .005" – 5.600" maximum +/- .005" . Threaded Nipple .685" maximum ID (ID as Mfg. NO Grinding, Reaming, or Polishing Allowed) . Rear baffle holes .1285" maximum, inner baffle holes .0965" maximum. Silencer must be utilized as produced, with no modifications or alterations permitted. Strap or brace required to silencer for support, and to insure silencer does not turn and unscrew.

Claimer Rule: You must finish the race in the box stock class to purchase the winners engine for \$200 (minus the clutch/chain guard/throttle kit, header pipe/muffler, air filter adaptor/air filter, top plate & fuel pump).

Important Note: Any attempt to increase the RPM 's of the BOX STOCK PROJECT, Stock Classes, engine (example: stronger/non stock valve springs or decreasing exhaust restriction from stock levels) is strictly prohibited. Should this be allowed or preformed will mandate the use of an aftermarket Billet style flywheel for high RPM use (Super Box). ARC currently has these parts in their product line (part #'s 6618/6619) and they are approved by AKRA for use, others may become available as demand increases. Note: Under no circumstances is this type of flywheel allowed in the Box Stock Project (Stock Classes), Stock Flywheel ONLY.

No other alterations to or from stock components are allowed

BP (Builder Prepared)

The intent of this class is to give those who want to make an incremental move up from Box Stock or a change from stock flathead a class of their own with horsepower similar to the flathead "stock" classes that are becoming increasingly expensive. The rules allow a builder into the engine, but are written with the intent of making it possible for the average guy to build his own engine.

BP (Builder Prepared) 6.5 OHV – GASOLINE ONLY 87-93 octane – Approved Engine: 6.5 OHV 196cc clone engine modified only according to BP OHV Engine Spec. Tires are track/series option.

ENGINE SPEC SHEET FOR BP 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.

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 are not permitted. Valve seats may have two angles, 45° valve face and 30° top relief. Inside diameter of valve seats must be stock (Int .897" max ID and Ex .862" max ID). Valve seats must appear stock and must be in stock position and depth. Stock head bolts are required and all four are required Head gasket/s maybe after market, must be of stock configuration, 2 gaskets permitted with a total minimum thickness of .008" and maximum of .020". 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" +.010"-.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 procedure posted below.

Carburetor/Intake Requirements: Stock Huayi or RUI*ING carb. Venturi .615" NO-GO. Rear carb bore .751" NO-GO. 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 tube are non-tech. Throttle shaft, screw, washer, and butterfly must be stock and must be present. 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. No additional support for rocker studs permitted. Valves must be one angle only, 45°. No polishing, lightening or knife edging of valves (1mm min. margin). Valve length is non-tech. Outside face of valve head may not be below the combustion chamber floor. (i.e. don't sink the valves) Valve cover may be drilled for fuel pump pulse fitting, otherwise, it must remain unaltered. Valve cover gasket is non-tech.

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) +/- 2 degrees for wear. Intake duration of 219 degrees at .050 lift/86 degrees at .200 lift. Exhaust duration of wear and gauge variances.) 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.

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 matting 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.

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

Header and Muffler Requirements: Header Pipe Length: Minimum 18" - Maximum 22". Silencer must be a RLV 91_L type with .1285 no-go hole. Header must be securely wrapped from flange to muffler prior to the race.