

FINAL Revision 2/21/17

This revision replaces Section 722 in the IKF 2017 Tech Manual. Due to all the changes this year in the CLONE WORLD, it was necessary to add and delete many changes so you will not need an engine for every different sanctioning body. Should you have any questions, please feel free to call the IKF Office and they will direct you to the appropriate party.

722 Stock International Class Engines (Clone, Jr. Clone)

These rules describe the specifications of Clone Class Engines. All parts must be factory production parts unless otherwise specified. No machining or alteration of parts is permitted unless specifically noted. All parts are subject to be compared to known stock parts. No reading in between the lines. If it is not in the rules, then it must remain stock.

722.1 Clutches: Any dry clutch is allowed, applies to all classes

722.2 Fuel: 87 Octane pump gasoline only.

722.3 Fuel Tank: Must be floor mounted.

722.4 Carburetor: Huayi or Ruxing type carb only. Choke assembly must be in place and functional.

722.4.1 Venturi: 0.615" No-Go Must-Go 0.608". Minimum protrusion into venturi of emulsion tube on Huayi Carb is 0.488" and on Ruixing Carb is .0478".

722.4.2 Throttle Bore: 0.751" No-Go

722.4.3 Emulsion Tube: Must remain stock. 0.066" No-Go Minimum length 1.092". No-Go may not pass all the way thru. The minimum diameter of the emulsion tube 0.154".

722.4.4 Low Speed Idle Jet: Non Tech

722.4.5 Main Jet: non tech

722.4.6 Throttle Shaft: Minimum Diameter 0.115"

722.4.7 Butterfly: Minimum Thickness 0.037 and minimum screw fastener length of 0.305.

722.4.8 Black Phenolic Insulator Plate: Must be in place between carb and block. Plate hole is non-tech, but must maintain OEM shape. Fuel bleed off slot must be unaltered. OEM thickness must be maintained at .257 minimum.

722.4.9 Clone Restrictors: May not be modified in any way and can be compared to a known stock restrictor. Must be checked with a blade type No-Go.

722.4.9.1 Junior I one hole 0.425 No-Go ARC green

722.4.9.2 Junior II one hole 0.550 No-Go ARC blue

722.5 Fuel Pump: Any pulsed type fuel pump is allowed. Fuel pump must be pulsed from the valve cover, crankcase or side cover.

722.6 Air Filter: Any air filter allowed but NO RAM AIR AFFECT.

722.7 Air Filter Adapter: Maximum Length 1.375"

722.8 Engine Block and Side Cover: Case Bearings and all other bearings must be OEM and **NO CERAMIC BEARINGS ALLOWED.**

722.8.1 Block: Decking of the block is permitted

722.8.2 Crankshaft: OEM crankshaft only, no modifications. Journal diameter 1.168" min. 1.180" max. Crankshaft minimum weight would be over 1700 grams.

722.8.2.1 Governor: Governor and governor components are non tech. Removal of governor drive is allowed

722.8.3 Connecting Rod: OEM connecting rod only. OEM rod bolts only. Honing is allowed but must maintain factory defined edge. Rod Length 2.350" to 2.375" with a minimum weight of 133 grams with cap and fasteners. New Stock Performance cast rod allowed.

722.8.4 Wrist Pin: Overall Length 2.100" minimum, inside diameter .555" maximum. Outside Diameter of wrist pin .707" +or- .005".

722.8.5 Bore: Maximum Bore 2.700"

722.8.6 Stroke: Maximum Stroke 2.126" +/- 0.007. Push piston down to take up rod play. Check stroke from BDC to TDC.

722.8.7 Side Cover: Side cover must be OEM, no machining allowed. Gaskets must be OEM configuration and are non tech. Sealer may be used. Maximum 2 gaskets on crankcase cover allowed.

722.9 Piston and Rings: No flat top piston allowed, must be dished-OEM w/no modifications. After market Pistons up to 0.010" over stock are permitted. After market pistons must meet specifications on minimum weight, deep dish and top, middle and oil ring specs and groves. Machining of the Piston is prohibited.

722.9.1 Piston: Piston must be unaltered OEM only. Minimum weight with rings 145 grams. Maximum bore allowed of 2.700". Arrow on top of piston must be pointed toward valves / lifters

722.9.1.1 Piston Pop Out: No piston pop-out is allowed. No tolerance is allowed.

722.9.2 Piston Rings: Top ring and middle ring .115" max. width. Piston rings must be self-supporting in cylinder bore. Top ring must be chrome faced. Top and Middle Ring Size .058" +or- .005". Oil Expander Ring .095" +or-.005" and width of .092" +or- .005". Oil ring assembly must be self-supporting in cylinder bore when checked installed on piston with connecting rod attached. Rings must be in one piece when presented for tech.

722.10 Cylinder Head: Must be OEM castings only. Porting, polishing and/or grinding on any part of the cylinder head is PROHIBITED unless otherwise stated. No angle milling of head. Measurement from gasket surface to the combustion chamber may not vary more than 0.005" in any direction. Only JT and TG-1 4 Bolt heads allowed. THIS IS SUBJECT TO CHANGE. Maximum head thickness of 2.640".

722.10.1 CCV: Minimum combustion chamber volume when mounted on engine @ TDC is 26.5 cc's. Head gasket required, but thickness is non-tech and can be either steel or aluminum. Measurement to be checked at TDC with LAD Tool and must be plum front to back and side to side before submitting fluid. Fluid type Marvel Mystery Oil.

722.10.2 Head Gasket: Head gasket required, but thickness is non-tech and can be fiber, steel or aluminum. 2 gaskets permitted, to maintain a minimum 26.5cc chamber volume. Sealer may be used on head gasket.

722.10.3 Valve Depth Check: Depth check between the valves in any direction cannot vary more than 0.005"

722.10.4 Valve Seats: Valve seats are of 3 angles, 45 degree face angle with top relief of 30 degrees and bottom relief of 60 degrees. Outside face of valve cannot be below floor of combustion chamber.

722.10.5 Inside Diameter of valve seats: Intake = 0.899" maximum, Exhaust = 0.862" maximum

722.11 Valves: Steel or Stainless steel valves with 45 degree seat angle only are acceptable. No lightening, polishing, grinding or other alterations are allowed. Only OEM or Nitrated Valves are allowed in this class. Upper seals optional, seals may be used on both intake and exhaust, lash cap on exhaust valve only.

722.11.1 Intake Outside Diameter: 0.975" minimum,

722.11.2 Exhaust Outside Diameter: 0.937" minimum,

722.11.3 Stem Diameter: 0.213" minimum

722.11.4 Weight: 21 grams minimum

722.12 Valve Springs: Springs must be made of a magnetic material. Number of coils: 4

722.12.1 Maximum Length: 1.250"

722.12.2 Maximum Outside Diameter: 0.790"

722.12.3 Maximum Inside Diameter: 0.650"

722.12.4 Maximum Coil Diameter: 0.0715",

722.12.5 Installed Height: 0.815". Spring shims allowed but must maintain 0.815" installed height,

722.12.6 Maximum spring pressure: 10.8 lbs. at .850" and 18 lbs. at .650". Should be checked with certified weight check system.

722.12.7 Intake Retainer: Minimum thickness 0.225"

722.12.8 Exhaust Retainer: Minimum thickness 0.245"

722.13 Rocker Arms: OEM 1:1 ratio steel rocker arms only. Must be OEM rockers.

722.14 Lifters and Pushrods: OEM lifters only. Length 1.350" to 1.390" Diameter max .935" and minimum weight of 18 grams.

OEM Pushrods Only. Length 5.275" +.010 max. Must be of 3 piece design and minimum weight of 9 grams.

722.15 Camshaft: Stock appearing camshaft cores only with the ez-spin assembly unaltered and in stock condition.

722.15.1 Cam lobe base circle diameter: 0.860" - 0.875" (taken from pushrod)

722.15.2 Duration (taken from pushrod): Intake duration of 221 degrees at .050" lift and 88 degrees at .200" lift. Exhaust duration of 224 degrees at .050" lift and 99 degrees at .200 lift. Camshaft tolerances: +2 degrees with no minimum duration check.

722.15.2.3 Intake lift at pushrod: 0.215" - 0.225"

722.15.2.4 Exhaust lift at pushrod: 0.222" - 0.232"

722.15.2.5 Intake lift at retainer: 0.238" maximum

722.15.2.6 Exhaust lift at retainer: 0.242" maximum

NOTE: Lift is measured off top of retainer as raced.

722.16 Timing Gear: OEM factory timing gear mandatory and must be installed in original location.

722.17 Ignition Coil: Ignition coil must be OEM for all classes, timing is non tech

722.18 Flywheel: Flywheel must be a minimum weight 3.3 lbs. No modification or removal of fins is allowed.

722.18.1 Legal Flywheels:

722.18.1.1 Raceseng RSP-13-075 & 077 Rev Wheel F-S1

722.18.1.2 ARC-6618 and ARC-6619

722.18.1.3 DYNO PVL Boxstock Flywheel

722.18.1.4 King Wheel Billet Steel DJ-168F-16200-A

722.18.1.5 King Billet Aluminum Slipstream

722.18.1.6 Ambush Flywheel Part Number 1116

☞ 722.19 Exhaust Sprint and Senior Speedway Classes Only: Multi-stage pipes allowed. Looped pipes (360 degree turns) are not allowed. Pipe (including silencer) cannot extend past rear bumper. Header wrap required for safety reasons. Gasket and/or silicone allowed to seal header pipe to head. Allen bolts permitted on header to head. Pipes must be double nutted or safety wired on at least one stud or bolt

722.19.1 Maximum length: 24" measured thru the inside of the pipe with .250 wide tape measure. Remove silencer and pull tape measure tight, if any portion of the length of the pipe is below 24" – pipe is legal.

722.19.2 Silencer: RLV 4104.or RLV B91 is mandatory with all baffle plates inside and as supplied by manufacturer. Baffle holes .1285" max. Silencer must be supported by clamped on brace.

☞ 722.20 Exhaust Speedway Junior Clone Class Only: Weenie Pipe Exhaust System only allowed in Speedway Clone Junior Classes.

Note: All Senior Class Exhaust Systems to follow 722.19, 722.19.1, 722.19.2

722.20.1 Weenie pipe must be round .750" OD steel tubing & constant diameter for entire length of pipe. No multi-stage on any portion of the pipe. Entire length may not exceed 15 inches in length or be less than 10 inches minimum length including silencer.

722.20.2 Pipe shall have a threaded fitting at the end of pipe to screw RLV B-91 mini silencer into it (no welding). Silencer shall have all baffle plates inside and be stock as supplied from mfg. Silencer may be compared to a known stock part! No grinding of inside of silencer. ID .685 +/- .005

722.20.3 Outside baffle holes shall have a max ID of .1285" ID and measured with a no go pin gauge. Internal baffle holes shall have a max ID of .0965" ID and measured with a no go pin gauge.

722.20.4 Silencer must be supported by clamped on brace. Silencer must be able to be removed for inspection. No aftermarket coatings of any type on pipe or silencer. Header wrap required for safety reasons. Gasket and/or silicone allowed to seal header pipe to head. Pipes must be double-nutted or safety wired on at least one stud.

722.21 Starter: Pull starter must be present and remain stock, angle of installation is non tech. Color and finish of blower housing, valve cover and all sheet metal is non tech.

722.22 Oil Catch Can: Engine oil recovery system required