



WORLD KARTING ASSOCIATION®

2024 Official Dirt Rule Book

V.1 05/07/24

Stock Clone Engine Rules:

Important Note: All parts must be Box Stock factory production parts unless otherwise specified in this rule's manual. No machining or alteration of parts is allowed unless specifically mentioned in this manual. Tumbling of engine parts is strictly prohibited. All parts presented in tech may be compared to a known stock part.

Approved Engines: Lifan, Blue Max, Ducar, Dupor, BSP, Moorries (196 cc ONLY.)

Attention: Just because it says non tech does not mean it can be modified. It is still compared to a known stock part.

WKA Optional rules (Check with your Track, Series or Promoter First if they are using these rules) RED.

Current WKA 2024 Rules BLACK

New Additions to the Current WKA 2024 Rules GREEN

1: Fuel: gasoline only (ethanol 10% only) or (87 Octane only)

2: Clutches:

All Jr's - disc clutches will be allowed. Jr's rookie red plate 16/64 gear rule only, right rear tires is 34 1/2 max od.

All Jr's - any stamped drum clutch allowed. No machining of drums allowed. Must be shoe type clutch. Machining a groove in the shoes is allowed to prevent overheating.

3: Fuel tank: **must be floor mounted**

A: Fuel filter: Must be mounted between the fuel pump and tank only.

B: Fuel Pump Requirements:

Fuel pump must be pulsed from either the crank case or the valve cover. (Maximum pulse hose length is 9 inches. You may install a flat metal plate in the original tank location for the purpose of mounting the throttle linkage and fuel pump.

4: Chain guard:

Must be present and be extended up past the Winnie pipe muffler when used. And must be securely fastened to the engine

5: Air filter:

Air filter cannot be configured as a ram air induction. Inspect inside air filter for an obstruction of air to pass through filter. A filter must be a round body with a maximum overall length (excluding flange) of 8 1/4" and a maximum diameter of 6 1/4". Air may only enter from the exterior surface of the sides of the filter body. The end of filter must be flat and there must be no entrance air from the end of the filter. Foam or nylon pre-filters are allowed. Any additional holes, vents, ports, etc. in the fuel system, carburetor or any other means of air introduced into air flow is strictly prohibited. Walker Filters allowed but the flat part of the filter must be pointed down to the body or towards the rear tire.

6: Carburetor:

Huayi, RUXING or Tillotson PK1B model carbs only. Carb to intake sealer is gasket only no other sealer is allowed. Choke must be as supplied from factory but may be fixed to stay in open position. (Choke area must remain as cast). Carb bore .615 no-go. Bore maybe machined to specs, Minimum bore size is .608, no polishing permitted, and all transitions must remain stock in and out of the bore. No grooving of the bore. Rear carb bore .751 no-go. Carb bore at rear of carb .750 maximum depth (This measurement is taken from the flat surface on the rear of the carb down to the circular ridge at Bore's edge). No use of Loctite or other materials on high-speed jets or damaged threads permitted to lock the jet in a non-stock location. Main jet must seat firmly on bottom of the E-Tube. The carb body is subject to tech). Stock emulsion tube must be used. The .066 no-go can't enter in either end of the e-tube. Side holes of the E-Tube is 2 or 4 holes in the bottom section and is an .036 no-go. The E tube must have 20 holes minimum in the middle section and is an .036 no-go. Minimum E-Tube length is 1.092 and must be straight. The minimum protrusion of the E-tube into the bore must be checked by a .488 and .478 no-go. Minimum outside diameter of the E-Tube at any point is .154. Throttle shaft is .115 minimum. Stop arm of the throttle shaft may be filed to adjust for butterfly position. Butterfly is .037 minimum thickness, and it must have factory taper on the butterfly. Butterfly screw has a minimum length of .305. The screw must remain stock with the washer. If the screw has a factory flare, it can be filed on the sides for the removal of burrs from screw to perform tech procedure (this will prevent damage to the throttle shaft). Aftermarket air filter adapter allowed-max length of 1.375.

Main fuel jet .042" NO-GO. Low speed idle jet is a non-Tech but is still compared to known stock part.

No tech on main jet. Low speed idle jet is non-Tech but is still compared to known stock part.

A: NEW CARBURETOR GAUGES EXPLANATION:

The following gauges are additions to the currently used gauges for inspecting the carburetor.

6a1: Mounting Flange Gauge:

The "T" shaped tool. Measures the distance from the e-tube to the mounting flange of the carburetor. Gauge may not touch e-tube.

6a2: Front Air Bleed Gauge:

Measures the size of the air bleeds on the air cleaner end of the carburetor. Measures both left and right bleeds holes. Left side is a .053 go and right side is a .040 go

6a3: Low speed air bleed Gauge:

This tool checks the 4 small holes opposite the butterfly behind the welch plug. Do not apply pressure when using this gauge. The gauge is a .031 no-go

6a4: Carburetor Bore Gauge:

This consists of 2 pieces. The E-tube gauge and .750 plug gauge. This gauge is designed for use in the Hauiyi; Ruxing; and Tillotson carburetors. Gauge is stepped for different bore sizes. Gauge measures the following: .750 step distance from e-tube. Place the largest of the two gauges (.750 bore gauge) in the mounting flange end of the carburetor and seat against the .750 bore area. NOTE: Be sure to use the correct size for the bore. Next place the appropriate end of the of the E-tube gauge in the air horn side of the carburetor and shove gently against the E-tube. NOTE: The E-tube gauge has a long slot and a short slot in each end. There are 2 long slots to be used for this check. If the E-tube gauge pushes the Bore Gauge away (the carburetor is out of spec. Be sure to use the correct size slot for this tech.

6a5: E-tube Gauge:

This gauge is used for checking the amount of visible machined bore in front of the gauge. The short slots are used for this check. NOTE: Be sure to select the correct size tool for the carburetor Ruxing .405 and Huayi .430. Slide the gauge in the mounting flange side of the carburetor and gently push against the E-tube. Visually inspect the opposite end of the gauge for visible machined bore in front of the gauge. NOTE: If no visible machined area of the bore can't be seen then the carburetor is out of spec.

7: Phenolic spacer:

Must be flat across the entire mating surface, with a min thickness of .265 (not including gasket). Gasket surfaces must remain parallel and no angle cutting allowed. Center inlet hole is teachable. No rifling, grooving, or dimpling is allowed. The mounting holes size is .300" no-go and checked with a.300 gauge. Phenolic spacer/and gaskets are subject to spray tests to check for leaks or the introduction of air into the engine.

8: Restrictor plates:

Must have a gasket on each side of plate and are subject to a spray test for possible air leaks. No modification is allowed to the restrictor plates. Rookie-Red .375, Green .425, Purple .500, Blue .550)

9: Camshaft:

Must be stock camshaft cores only. EZ-spin assembly must remain as stock and functional.

9a:

Cam lobe base circle is .865 \pm .005/+.010. Duration checks for Intake and Exhaust lobes are taken off the pushrod. Intake duration is 219 at .050 lift and 86 at .200 lift. Exhaust duration is 222 at .050 lift and 97 at .200 lift. There is a +2-5 for wear and gauge variances. Intake lift at the cam is a Max. 225 and a Min of .215 lift taken off the pushrod. Max Intake lift at the valve is .238. Exhaust lift at the cam is a max of .232 and a Min of .222 lift taken off the pushrod. Max Exhaust Lift at the valve is .242. The new tool to check running lift can be purchased from Carl Young. Its check's running lift from the valve stem.

9b:

Cam lobe base circle is .860 to .875. Duration is taken off the pushrod. Intake duration is 221* at .050 lift and 88* at .200 lift. Exhaust duration is 224* at .050 lift and 99* at .200 lift. Camshaft specs: +2* with no minimum Intake lift at pushrod is .215 to .225. Exhaust lift at pushrod is .222 to .232. Intake lift at retainer is .238 max. and exhaust lift at retainer is .242 max. All measurements will be checked as raced. Original max lift and profile gauge is the preferred tool.

10: Cylinder Head:

OEM head JT, TG1, SRE/GAGE and the Tillotson head are the only ones allowed. Any other heads manufactured must be sent in for approval. All heads must meet all the specs listed in these rules. Valve seats must have three angles only: (30*, 45*, 60*). Intake seat maximum ID is .899 no-go, Exhaust seat maximum ID is .863 no-go. There is a 1mm minimum margin on top of the valve seats (must be visible). Top face of the valves may not be below the floor of the combustion chamber. It is checked between both valves on the roof of the head. (do not sink the valves). Valve guides must be in the stock position with a min length of 1.055. There is a multi-tool used to check the length, position and depth in the head. Stock steel guides only. The spring pocket tool checks the spring pocket flatness, The use of aftermarket flanged bolts of similar size 8mm x 1.25mm bolts are allowed for replacement. Head gasket or gaskets maybe aftermarket and be stock configuration. Gasket thickness is a tech item with a .009 minimum thickness. Depth check between the valves, (12 o clock to 6 o clock) front to back and (3 o clock to 9 o clock) side to side may not vary by more than .005. This is measured from the head gasket surface to the center of the valves.

There is a new tool to check the angle of the intake runner. You cannot modify this angle. The only bolts you can heli-coil is the exhaust bolts which are 8mm x 1.25mm. Studs or Allen bolts are allowed.

10: No copper or aluminum gaskets are allowed, and sealer is permitted.

10: Steel or aluminum gaskets are allowed, and sealer is permitted.

10: Option 1: Porting Allowed

The new porting tools are used to check the intake port runner entrance. (gasket surface) Intake .962 no-go vertical oval to flat and .950 no-go horizontal flat to flat. (gasket surface) Exhaust .974 vertical oval to flat and .967 horizontal Flat to Flat. Both port entrance and exit must maintain the original "d" shape. No addition of material in ports, no rifling, dimpling. Port must have factory edge. You can't touch the guide or seat when porting the head. Touching the guides or seat when porting will be out of spec. Stock steel guides only

10b: No Porting Allowed

Some of the porting tool will be used to check the head. Valve guides must be in the stock position with a minimum length of 1.055. Multi tool is used to check length, position and depth in the head. Stock steel guides only. The spring pocket tool checks the spring pocket flatness. Head gasket thickness is non-tech. Head dimensions are as follows: maximum thickness 2.640 measured through the valve guides to the valve cover gasket surface. "L" shape tool cannot touch the combustion floor between the valves. Head thickness is measured from the valve cover gasket surface to the cast surface between the valve springs is 1.150 max. The bowl depth measurement from the top of the seat to the bottom of the bowl beside the guide is as follows: Intake is .880 max, and the exhaust is .830 max. The valve bowl height gauge or plug gauges should be used to check these measurements.

10c: Combustion Chamber:

Measure from the gasket surface of the head to the center of the valve's minimum .280 depth. You may wipe carbon off the head before the test. (0 deck no pop out) (Take tool R2217 and lay on block with piston at TDC). The tool cannot touch the piston while swiping from top to bottom of the block. No peek decking allowed. Can lay the tool R2217 (flat bar) across the piston pin area and use a stroke bracket with a 1" indicator to check pop out. Piston dish depth is .050 + or - .002.

11: CC Check:

26.5 CC minimum at TDC,

Using prescribed method: Engine must be mounted on a 6* mount. CC plug inserted and torque to 90 in lb. Rotate engine from TDC to 45* either direction. Fill burette past 0 slowly lower fluid (Marvel Mystery Oil only) to 0. Slowly open valve to allow fluid into engine. When you have allowed 26.7 cc to enter combustion chamber turn the valve off. (Going past 26.5 is for residual fluid on the tube to run down the tube.) Rotate engine back slowly to TDC. If fluid is pushed out of the plug it is deemed out of spec.

Note: This is something you must practice with, too fast will create bubbles which are your enemy.

12: Valve train:

Stock four bolt valve cover only with cork or rubber gasket, sealer is allowed. Factory stock rocker arms must be a 1:1 ratio. Square tip rockers are allowed. Minimum over-all length of the rocker arm is 2.145. The minimum thickness of the upper valve stem end of rocker arm is .030. Removal of material from the contact area of rocker arm to valve stem only is to adjust for proper running lift. Stock steel or stainless nitrate coated valves only. Must be a 45-degree angle on both valves. Both valves must have a minimum weight of 21 grams each. A 1mm margin on the top of the valves. No knife edging of the intake or exhaust valves is permitted. Intake valve Max OD is .982 + or - .005 and the exhaust valve Max OD .945 + or - .005. No other modifications are allowed. Any single valve spring measuring 10.8 lbs. at .850 and 18 lbs at 650. The installed height for the valve springs is a .815 must go gauge. It is a must go gauge that goes between the retainer, seal and any shims that are in place on the intake and exhaust valve if used. Shims can be used to achieve the .815 installed height. Maximum thickness of shims used is .075. Using a combination of valve seal and shims is allowed. The Rubber seal may be removed and used as shim only). You may use the valve stem seal or not. It is a tech

item if used as a shim. The rubber inside it is a non-tech item.

12a: Spring check Weights:

Procedure check is as follows: Remove the valve retainer. Remove the spring it must be checked as ran. No flipping of the spring is allowed. Place the .850 spacer over the post, place the spring over the post. Slide the 10.8 lb. weight over the post gently lower it onto the spring and press lightly. Release the weight and take a flashlight and look for light between the weight and the spacer. If you see a light 360* around the spacer it is deemed out of spec. The weight must touch the spacer at any point in the 360* area. Once both springs have been checked, repeat the same procedure using the .650 spacer and add the 7.2 lb. weight to achieve the 18 lb. check. If at any point the spring lifts either weight off of the spacer it will be deemed out of spec. Sanding the ends of the valve springs is allowed to help meet the spring checks. Using a dial caliper check the free length of the spring then rotate the spring 180* and recheck the free length. It cannot be more than .040 differences.

12b: New Spring check:

Effective Dec 1, 2024:

A cylinder to drop the spring into to measuring the free length of the spring is 1.165+/- 0.015, max spring OD of .795 +/- .005, max spring ID is .661 +/- .005. Maximum of 4 coils, max wire diameter of .067. If the spring rises out of the tool or is below the minimum slot of the tool it will be deemed out of spec. Also, there is a .625 post on the end of the tool to measure the spring id.

***Spring check Box:**

Second choice for valve springs check. Each spring is to be checked using a .750 by .810 square box and a .250 square no-go gauge. Procedure check is as follows: Place the spring in the square box and firmly press it to either side square against the wall. Take the .250 gauge and check the spacing of the spring in the center. The gauge is used to check both sides of the spring by rotating the box. It can enter only one side of the spring or not enter either side and be deemed legal. If it enters both sides of the spring it is deemed out of spec.

12c: Lash cap:

Use on the exhaust valve only the minimum height is .150 and the minimum diameter is .330. No other modifications are allowed.

13: Push Rods:

The push rod is 5.285 maximum and 5.230 minimum. Push Rod must be a 3-piece design, a hollow or solid tube with two solid ball ends. Weight check for push rods is 9 grams minimum.

14: Valve cover:

May be tapped with a 1/4" NPT pipe tap, to use a breather fitting, No oversize drilling allowed. The use of Aftermarket flange bolts of similar head size, diameter, length and thread pitch (6mm x 1.0 mm) can only be used as a replacement. Flapper vent in valve cover must remain stock and functional.

15: Engine Block:

Must remain stock. Beveling at top of cylinder for gasket matching is strictly prohibited. Maximum bore options are listed below. Max .010 over bore. No piston pop out allowed. Matting surface finish for the block and cylinder head may be machined for the purpose of gasket failure and to meet cc check. You may use 2 side cover gaskets. The oil drain hole

between the lifters is checked with a .251 no-go. Any type of side cover bolts, studs or lock washers are permitted. Must be original size. Sealer permitted. Solid dowel pins are allowed for replacement of the side cover to block. The measurement of the dowel pin is .315 or 8mm maximum diameter. Dowel pin must be in the factory position. Governor may be removed, and hole plugged. Welding to the block shall be for rod damage only. No welding on the fins of the block or the flywheel side of the block. No other modifications are permitted.

15: **2.691 no-go**

15: 2.700 no-go

15a: Clone lifters only:

No modifications are allowed. Lifter Head diameter is a .915 minimum and the weight is 18 grams each.

15b: Stock rod only: The new performance rod is allowed. OEM cast rods and rod bolts only. You can hone the rod journal and wrist area for proper clearance. No breaking of edges is allowed. No bullet rods are allowed. The minimum weight is 133 grams. The rod length is 2.375 maximum and 2.350 minimum. Oil hole may be drilled for better oiling. This must be checked by a .219 no-go. You may not change factory chamfer or angle drill the oil hole.

15c: Stock piston & rings:

Piston must be unaltered box stock. Overall piston length is 1.935 maximum to 1.920 minimum. From the top of the wrist pin to the top of the piston is a .580 maximum. The arrow on top of the piston must be pointed down toward the lifters. The top ring and middle ring are .115 maximum widths. The two top rings are .060 max thicknesses. The 1 mm rings are not allowed. Filing of ring end gaps is permitted. Max end gap is .040 on both of the top rings. Lapping of rings is permitted. File fit rings are allowed. Piston ring must be in one piece, unbroken when presented to tech personal. If either ring is broken while being taken off, the tech process is stopped and deemed out of spec. The 2 top piston rings must be self-supporting in cylinder when installed. Oil ring assembly and piston must be self-supporting in cylinder. This must be checked as ran in competition. Minimum weight of piston is 145 grams with the oil scrape rings installed. Honing of wrist pin and rod journals is permitted. No chamfering, rounding of sharp corners, or breaking of edges is permitted. Cylinder surface must remain flat and retain stock edges. The skirt on the piston must remain as produced from factory. The wrist pin length is non-tech currently.

Rod cap and bolts are not required during this check.

Rod cap and bolts are required during this check.

15d: Stock clone crankshaft only:

OEM factory crankshaft has no modifications. Stock stroke length is 2.126 +.007 - .005. The maximum is 2.133. Machining, polishing, addition of material or other alteration of the crankshaft is strictly prohibited. Crankshaft journal diameter is 1.180 maximum to 1.168 minimum.

Crankshaft weight is 1680 grams minimum. This is a reference only at this time.

15e: Bearings:

Crankshaft Bearings should be of metallic steel construction and be a stock ball design of nine balls only. Bearings may be slip fitted in the block and side cover. No ceramic bearings

are permitted.

16: Spark Plug:

14mm X .75 reach only. Aftermarket plugs are allowed. Sealing ring must be on the spark plug.

16a; Spark plug boot:

Must be a Phenolic insulator or plastic. Resistor or non-resistor is allowed.

17: Ignition system:

Stock Clone system only and must be unaltered. Kill switch and low oil sensor may be disabled or removed.

17a: Option for Future Consideration

Junior's Rev-limiter coils: Rookies or Beginners use the Red (4100 rpm), Green (4800 rpm), Purple (5400 rpm) or Blue (6000 rpm). This option is up for approval.

18: Flywheel:

BSFW-1 and DJ-168F-16200-A are the only steel billet flywheels that are allowed, (5lbs 4oz minimum including plastic fins). The ARC 6619, ARC 6618, NF- S1 & RSP-13-077, F-S1, PVL 211-900 are the only approved flywheels in the Clone class. Non-fin flywheels must utilize the stock plastic fins. No alterations of any type allowed. Stock cast flywheel are no longer allowed. Timing key is non-tech. All new flywheels must be submitted for approval.

19: Header Pipe and Muffler:

Stock Clone: Junior's and adults

Header Pipe length is 16 1/2 minimum to 20 1/2 maximum. (To be measured on the inside of the pipe with a 1/4-inch steel tape). Sealer maybe used in place of a gasket. To tech the pipe: Place the engine on a flat surface. Measure from the flat surface of the block to the bottom edge of the silencer end. This cannot exceed 9 inches. Header flange maximum thickness is .510 or 1/2". Allen bolts or studs (8mm x 1.25mm) are allowed. Maximum height from the top of the header flange to the top of the pipe curve is 10 inches. It must be wired or double nutted. Header gasket must be stock configuration. Any leakage of exhaust from the cylinder head to the end of the silencer will be deemed out of spec. Hose clamps are not allowed to attach the silencer to the header. All headers must be wrapped to prevent injury. No part of the muffler can be wrapped. ALL B91 silencers must be safety wired to the header brace. The B91 rear baffle holes are .1285 no-go. All 4 baffles must be present.

Winnie pipe: Is a single stage, one-piece header .750 od steel tubing, with an RLV Mini B-91 Silencer. The RLV B-91 Silencer must be treaded into the pipe securely. The entire header, (including the silencer), is 15 inches maximum and 10 inches minimum length. Header pipe must be double nutted, and safety wired. Bolts or studs are allowed. The silencer must be wired to the brace. RLV Mini 91 Silencer Requirements: RLV Mini 91- #4117 overall length is 5.470 inches minimum (+ or - .005) and 5.600 inches maximum (+ or -.005). Threaded Nipple .685 max id - No modifications allowed. Rear baffle holes .1285 no-go and inner baffle holes are .0965 no-go. A new tool has been made to check the inner baffle holes. It must be removed to check the inside baffle. There cannot be more than 3 holes in the circle of the tool. A wire should attach the silencer to ensure it does not turn or unscrew. All headers must be wrapped to prevent injury. No part of the silencer can be wrapped.

20: Blower Housing and Pull starter: This must be present and remain stock. You may rotate the pull starter for easier cranking.

21: Engine oil catch can is mandatory

22; Low oil pressure sensor may be removed.

23: Governor is non-tech and may be removed.

24: Coatings: Any performance coating of any type is strictly prohibited. Only header pipes are allowed to be coated,

