

## KWIK SHOP

### PREDATOR HEMI CLASS 2018

- These rules are intended to keep the engine as Stock Out Of The Box As Possible. There are no gray areas. If they do not specifically state that something is allowed, it will automatically be illegal. All parts must be Factory Predator parts.
- Should any parts that are in question arise that are not clearly addressed in these rules, it is the duty of the racer to obtain clearance from Local Tech Inspector prior to entering the class. If in the opinion of the LTI the intent of the modification was a performance gain, the racer will be DQ'd from all classes entered that night.
- Officially the Spirit And Intent discretion will override all rules mentioned below. If there is not a measurement given below, It Must Remain Stock. If it does not say below you can add or take off or modify, it must remain Stock.
- All OEM casting marks must be visible. All OEM Factory Stampings must be visible at time of inspection, NO TUMBLING OR POLISHING.
- No interchanging parts from different Serial # or generation groups of engines.
- Local track reserves the right to swap any part/Complete engine off the engine being raced with a known OEM part/complete engine.
  
- Track has option of updating the rules if any parts are found to be OEM updates that are not covered in this manual, Anytime during season.
- Original Fuel tank cap must be completely sealed. Drilled 1/8 hole allowed in cap to vent, fuel pick up tube must be in stock location. Fuel line must remain ¼" id.
- Fuel pump can only be pulsed off of valve cover, Not side cover. Approved fuel pump only.
- Blower housing OEM. Pull start must be in original location at end of race. **No TAPING PULL STARTER IN 2018.**
- Stock air box. Air can only enter carb through OEM filter. Must pass combustible spray test. Air can only enter air box from 4 square holes at bottom and end of stock air box. No adding or removing material.
- HEADER: Pipe can be wrapped but not muffler. 10-15" long .685 max id nipple. .750 od pipe max. RLV B-91 mini only Part#4117 5.470-5.600. **MUFFLER IS MANDATORY IN 2018.** MUST be able to unscrew from pipe to measure inside baffles. Muffler must be completely tight against pipe and braced. No sealer permitted. Must meet height rules of 14.5" to surface. Aftermarket studs are allowed for clearance of Doubled Nuts, safety wired coupling nuts allowed. Flange: .500 flange (MAX) allowed. Muffler must be connected to pipe at completion of race. Broken pipe (2pcs) warrants DQ(Safety) from that class.

Carburetor:----- Look on Kwik Shop Predator rules.

SPRINGS and RETAINERS \_\_\_\_\_

Height cannot be more than .040 difference at any location from a confirmed starting point. Must pass ¼" coil bind check on one side of block. Max OD of .800 Must Pass Track's 10.8 and 18# check. .071 Max Wire Diameter. Max 4 coils. Length will be compared to known stock spring. Maximum Length: 1.225". Springs must be made of a magnetic material.

.Retainers: Must be OEM for Series of Engine raced. Must be Magnetic

- TIMING: 15 degrees (-5 +1)
- Ignition: 11 ohms max and must show a reading. Resistor must be present and functional.
- CC 28 must stay in Plug
- CAM : .550 Journal Compression Relief must be fully functional. Base Circle .870 DURATION: Exhaust .050=207-210max .200= 79-81max DURATION : INTAKE .050=204-207max .200=72-75max. VALVE LIFT: .240 based off 1:1 ratio on Max Lift for individual lobes.

INTAKE : .050= 11 ATDC

- .100= 28 ATDC
- .150= 49 ATDC
- .200= 77 ATDC
- .225 max
- .200= 30 BBDC
- .150= 2 BBDC
- .100= 19 ABDC
- .050= 37 ABDC

EXHAUST: .050= 25 BBDC

- .100= 8 BBDC
- .150= 11 ABDC
- .200= 38 ABDC
- .225 max
- .200= 64 BTDC
- .150= 34 BTDC
- .100= 14 BTDC
- .050= 3 ATDC

+1 -1 Tolerance is allowed on one reading each side of max lift on each lobe.

- HEAD: Gasket surface to area between valve seats .415 minimum. Sealer Allowed on gasket area. .891 no go on X seat, .971 no go on Intake seat. 68 mm chamber minimum. Gasket OEM material only: NO Aluminum or Copper, .009 min. Depth of bowl on both ports .9375 DO NOT SINK VALVES. Spring Pocket cannot be altered.
- NO DEBURRING allowed anywhere.
- VALVE TRAIN: No sealer allowed on valve cover. Stock angle on valves with dish only, OEM. Stock material only. VALVES: 2.520 long .214 diameter stem. Intake .986 .055 dish Exhaust 1.064 .071 dish.

No Shims Allowed. One OEM seal allowed on each valve, seal material must be functional. ROCKER PIN= 1.025 length, .314 dia. Valve guides= .216 max id, 1.090 min length on X, and 1.220 min. length on Intake. PUSH ROD= 5.550" .157 diameter .194 Ball Diameter Rocker Arm Length 1.850". No grinding of any parts of rocker arms. Installed height .900 Min.

Piston to remain in block minimum .020. Lip on block must be visible.

- Bore: 2.756 max
- Stroke: 2.161 max (-.005)
- Flywheel: OEM, Must weigh 5.100 lbs. Flywheel fins must be plastic and original length and shape. No offset keys allowed. No grinding of keys . Stock key must be present.
- Rod: 2.365 long .710 ID Wrist Pin(41g min.) 1.190 Crank Bore(60 oz. min)
- RINGS : OEM ring tension cannot be altered. Diameter of OEM ring to be comparison. Ring gap mandatory on all rings. Piston must held in cylinder by individual rings in stock location. Top ring .039 x .092 Middle ring .039 x .109 Bottom ring .018 x .089 Corrugated .098 x .090
- Bearings: 9 Balls total per. Balls, race and housing must be magnetic Cannot be Ceramic

CLUTCH: 16 Tooth Steel Drum with centrifugal shoe type

TIRES: Maxxis EL WHEELS: 10" Maximum

No Skip Tooth gears allowed on any part of drive train

58,59,60 Teeth Gear only

33.75"-34.5" circumference on Right Rear.

## KWIK SHOP

### PREDATOR ENGINE CLASS SPECS 2018

.If original fuel tank is being used it must be stock location. Fuel pickup tube must be in stock location and original size fuel line ID. Approved fuel pumps allowed. Pulsed only off of the valve cover. Lid must be taped closed and fully sealed. Lid may have 1 hole drilled with a max of .125" to vent.

.Air Box Stock. No paper filter style air box allowed. Air can only enter through 4 square holes at bottom of air box passing through OEM foam filter material. Must pass combustible spray test. No adding or removing material.

- **HEADER:** Pipe can be wrapped but not muffler. 10-15" long .685 max id nipple. .750 od pipe max. RLV B-91 mini only Part#4117 5.470-5.600. **MUFFLER IS MANDATORY IN 2018.** MUST be able to unscrew from pipe to measure inside baffles. Muffler must be completely tight against pipe and braced. No sealer permitted. Must meet height rules of 14.5" to surface. Aftermarket studs are allowed for clearance of Doubled Nuts, safety wired coupling nuts allowed. Flange: .500 flange (MAX) allowed. Muffler must be connected to pipe at completion of race. Broken pipe (2pcs) warrants DQ(Safety) from that class.

.TIMING: 15degrees( -5+1)

.Combustion Chamber 28 CC must stay in plug

IGNITION. Kill switch and low oil sensor can be disassembled. 69730 coil only. 11 Ohms Max. Must show reading. Resistor must be present and functional. .Coil – Z010210 TD03 – 4D 2011 0 827 Pattern for part number

.Stock Flywheel Only 5lbs 4 oz. Minimum or 5.250 min. Flywheel fins must remain stock by number of fins and length of fins. Plastic fins only. Stock Flywheel Key must be present. No Offset allowed.

.Blower Housing OEM . Pull start must be in original location at completion of race. **NO TAPING OF PULL STARTER in 2018**

CARBURETOR: -----

HUAYI or RUI\*ING or SP. There must be a factory edge, not rounded or smoothed over, all the way around the entrance and exit to the venturi of carburetor. No extra holes drilled in carburetor anywhere. Choke assembly must be in place and functional. Venturi .608" Must-Go. .615" NO GO Bore. Throttle bore .751" No-Go. Minimum Protrusion into venturi Huayi: .488 SP,Ruixing: .478 E Tube: Minimum length is 1.092". Hole diameter must be 0.036" No-Go. Bottom holes can be either 2 or 4 holes. The minimum diameter is 0.154". Phenolic Plate: Inside Hole .066 NO GO (Cannot Enter Either Side) Bolt holes stock **No altering finish. No altering Bore finish or shape. Fuel bleed off slot must be unaltered.** Thickness must be maintained at .257" minimum. Plate must be flat and maintain consistent thickness at all points. Gaskets: Only one gasket is allowed between the carburetor and phenolic spacer, and if a restrictor plate is used a total of two gaskets are permitted.

.Low Speed Hole In Carb. .092 no go

.Hole in LOW Speed Jet Holder: .103 NO GO

.LOW Speed Jet: .021 No GO/Both O Rings in stock location. Bottom Oring cannot enter .265 No Go Hole

.MAIN Jet .031 NO GO Length .340(+-.005) Must Be Tight against E Tube

.245 No Go @ .610 depth in casted Low Speed Jet holder on carb

.Pick up Hole @ Main Jet .091 NO GO

.Hole @ Float Seat .061 NO GO

.Holes behind welch plug on low speed side exit .024 max

.Throttle Shaft .115 min @ butterfly .231 shaft min. (NO REAR OFFSET)

.Butterfly: Part# on right side/Must be present. 037 min thickness.

.Screw in Butterfly shaft .274 minimum length

VALVE TRAIN: No sealer allowed on valve cover. No grinding or Bending on rocker arms. No bending rocker studs. Studs must remain stock length and thread pitch.

.Rocker Arm Adjuster Nut .825 long .491 diameter

\*WARNING: Valves must be OEM from original head castings. No swapping of Valves from original Casting or Generation of Engine. Stock Valve Angle with OEM dish only. Stock Material only. One seal .027 max allowed on each valve, seal material must be present and functional. Mechanical seal may be removed. NO SHIMS.

.Intake Valve .982-1.064Dia. 2.513-2.520Length (.027 max only 1). 20g weight

.Exhaust Valve .946-.982Dia. 2.455-2.520 Stock Lash Cap Present (.027 max. only 1) 18g weight

.Valve Stem I and X .196-.218 No Polishing or Crosshatching

SPRINGS and RETAINERS\_\_\_\_\_

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.Retainers: Must be OEM for Series of Engine raced. Must be Magnetic

CAM\_\_\_\_\_ EZ Spin as factory

.Stock Predator cores only. Factory Stamping visible to match Model and Serial number.

.Length of Journal .439 long .558 diameter Journal

\*\*\*Warning: The + and – number listed below are for max and min numbers found in all of the R & D done on the cams spec'd in the Predator Series engines. Legality of cam is based off of the generation and serial number of block raced.

.Plastic Gear R-180-3 J8 1-1 PA66



GENIII Chrome.039.094 Black .039.107 Oil .015.083

.ROD 2 RTC-01 Z440110 2.367 .160 oil hole Stock Rod Only

.WRIST PIN 2.125 length .709 od .540 id Wgt. 41g

. LIFTER 1.440 long .928 dia Lifter Bore Max .320 GENIII series 1.363 long .314 stem .931 dia. 1.002 bore  
20g wt

CLUTCH: 16<sup>th</sup> Steel Drum with centrifugal shoes

Tires: Maxxis EL Wheels 10" Max

No Skip Tooth Gears Allowed on any part of Drive Chain

33.75"- 34.5" circumference on Right Rear Tire

Track Class Gear: 58 ,59, 60