

Great Lakes Pro Series

2009-2010 Spec Moto (125 Stock Moto) Engine Standards

Spirit and intent

The following rules are applied in order to provide fair and equal competition within the class. The specifications and limitations are supplied in order to allow each competitor to insure that his or her engine meets these rules. Compliance is the competitor's responsibility. Any attempt to circumvent these rules violates the basic premise of the class and will be dealt with as any direct violation of the rules. Violation of spirit and intent is defined as any attempt to elaborate on the existing rule in order to gain a competitive advantage. Anything not specifically outlined in the rules should be considered illegal.

1.0 Engine

The 1999 Honda CR125 "kit motor" is generally accepted as the motor that the class is designed around.

1.1 Cylinder

Cylinder must be unaltered 1997-2002 CR125.

No Modifications allowed to the cylinder height, port inlets, passages, or port windows of the OEM part as supplied from Honda.

The cylinder must be as cast, no modifications, and no replating for any reason.

Cylinder Height Minimum is 3.311" min to 3.316" max, measured from the cylinder base to the head surface.

Exhaust Valves (power valves) may be removed and plugged. Plug is a non-tech item and may be blended to match the exhaust port. All modifications to plug must be done prior to installation in cylinder and no grinding, polishing, or machining of any type may be done to the exhaust port.

Allowable Base Gasket Thickness: .010" - .030"

Exhaust Port - Cylinder top Minimum Distance: 1.145" (29.08 mm)

Stroke: 2.149" (54.59 mm) maximum

Bore: 2.129" (54.10 mm) Maximum

1.2 Cylinder Head

1997-2002 CR125 Cylinder Head only.

No modification to the OEM combustion chamber volume, shape, or dimensions.

Combustion Chamber Profile must match the approved Shockwave 99 CR125 Cylinder Head Gage.

Cylinder Head Gasket will be OEM only. Thickness = .010" + or -.001".

Cooling spigots may be replaced with a substitute in the original location.

One spigot may be plugged for single water outlet.

Mounting boss may be removed

Combustion Chamber Profile

Using approved Shockwave 99 CR125 Cylinder Head Gage, inspect Parabola of Chamber Dome and Squish recess for apparent gaps greater the .005" deep.

Spark Plug sealing surface must be above spark plug stem of gage. The overall height is measured also. "The "go" portion of the stem of the profile gage should protrude above the spark plug sealing surface. The "No Go" portion of the stem should not."

Piston to Cylinder Deck Minimum is .025" (.63mm)

1.3 Crankcase

Crankcase halves must be OEM.

Internal Crankcase modifications are not allowed with the following exception. Minor grinding of casting flash is allowed but only to eliminate the possibility of flash breaking off and damaging the motor.

Kick Starter may be removed and plugged.

Legacy Cases (fully modified cases) the use of legacy cases, i.e., may be utilized. The legacy cases may be used but must utilize the other stock components such as cylinder, head, ignition etc. All aftermarket crankshaft bearings must be steel material and must be same size and diameter as OEM

A weight penalty may be imposed (10 pounds). The use of Legacy cases will be approved through 2010. If the legacy cases are replaced, the new stock cases must comply with the "no internal or external modifications" rules.

1.4 Crankshaft

Crankshaft must be OEM Honda CR125 any year. The crankshaft main bearing journals may be polished for slip fit of bearings.

Precision alignment of crank is allowed.

No material may be added or removed from Crank Wheels or Rod.

No "heavy metal" balancing allowed.

1.5 Connecting rod

Connecting rod must be OEM with no lightening or polishing.

Bearings, piston pin and cir-clips are direct replacement OEM only.

1.6 Piston

1999 OEM Flat Top design direct replacement OEM only.

This piston has a window and cannot be replaced with non-window piston.

Piston Ring Minimum Thickness: .038" (.96 mm) as measured with calipers.

1.7 Bearings

All crankshaft and rod bearings must be stock OEM without modifications.

1.8 Gaskets and seals

Gaskets are non-tech.

Seals must be stock OEM without modifications and installed as manufactured.

1.9 Clutch

Stock OEM 1999-2002 CR125 Clutch Basket and Pressure Plate must be used.

No modifications allowed to any component.

All 7 Clutch disks and 6 Clutch Plates must be installed.

Aftermarket replacement clutch discs, plates, springs and hardware parts are allowed.

1.10 Transmission

Transmission Bearings are to be stock OEM.

Micro polishing of Gears is allowed.

Five or six gears are allowed.

Gears are per the 1994-96 ratios as follows;

First - 14/33

Second - 15/28

Third - 19/29

Fourth - 21/27

Fifth - 23/26

Sixth - 24/24

1.11 Water pump

Water pump must be used as originally intended. No external or axle driven pumps allowed.

2.0 Induction System

2.1 Carburetor

Approved carburetors are,

Keihin PWM, Keihin PWK, Mikuni TMX38

No modifications allowed. No polishing, grinding or machining allowed.

Venturi Diameter may not exceed 38.6 mm in diameter measured from the first .450" of the Venturi diameter downstream from the slide. Round bore only

Pump-around Carburetor Fuel Feed Systems are allowed.

2.2 Fuel Pump

Fuel Pump(s) must be driven by pulse pressure in the motor. No Electronic Fuel Pumps. Dual Fuel Pumps for Pump around Carburetors allowed. Fuel Pump must be a separate component from the Carburetor.

2.3 Carburetor Boot

The stock 1999-2002 CR125 30° Boot is recommended.

The RS125 Straight Boot or the RS125 5° boots are allowed For Seat Clearance Purposes. However, the Stuffer Lobes of the Straight Boot and the 5° boot must be cut off flush with mounting surface and may not extend into Reed cage.

SwedeTech RS Replacement Boot part number SRE – RS125 is allowed. Use SwedeTech tech tool SRE – T – RS125 for inspection.

2.4 Reed cage and Reeds

Reeds are open but must be single petal design. No dual stage reed petals Reed cage must be 1999 CR125 6-Petal Design.

No material may be added or removed.

Reed Stops must be 1999-2002 CR125. Bending stops to fit into unaltered reed throat of crankcase is allowed.

No removal of material from Reed Stops allowed.

2.5 Air Filters and Air Boxes

Motor may be equipped with either Air Filter or Air box. Air Box Requirements may be imposed by Local Track regulations.

3.0 Exhaust System

3.1 Pipe/Expansion chamber

The Pipe/Expansion chamber is restricted to the following,

RLV 6800 series also marked as (RLV-R2)

RLV-R4

RCE T3

The Pipe/Expansion chamber Maximum Circumference is 17-1/8" (440mm) measured at the drum/dwell section.

Addition of exhaust gas temperature lead is legal, but hole must be plugged if exhaust temp lead is not used.

External mounting brackets may be added.

3.2 Silencer

Silencer should be a minimum of 10" long by 2-1/2" in diameter. Tracks that have noise emission requirements shall provide any necessary supplemental rules for where noise abatement is required.

3.3 Exhaust Flange

The exhaust flange is open but aftermarket headers may not alter the effective length of the exhaust system by more than plus or minus .050".

4.0 Ignition

4.1 Coil

Coil must be Stock 1999 Honda CR125 Coil.

4.2 CDI

Capacitive Discharge Ignition (CDI) must be Stock 1999 Honda CR125.

Denso Part Number 071000-1410 should be legible on Tag.

4.2 Flywheel and stator

Flywheel and stator must be Stock 1999 Honda CR125 parts.

No material may be removed from Flywheel.

Flywheel Key may not be machined to offset timing.

Stator may be mechanically advanced or retarded but must remain in a fixed position while running.

Stator Plate may be slotted for adjustment.

4.3 Spark Plug and Ignition Wires

The spark plug manufacturer is open, but the plug must be commercially available and measure 18.5mm long by pitch M14 x 1.25. Exception: The spark plug washer may be removed to facilitate the use of a cylinder head temperature sensor and the gap of the electrode may be adjusted.

Ignition Wires are non-tech.

No additional components may be electrically connected to the CDI or Coil. Only an inductive RPM sensor may be used

5.0 Ancillaries

Studs, Bolts and washers are non-tech.

Technical inspection procedure and specifications

1.0 Engine

Cylinder Height Minimum: 3.311" min to 3.316" max., as cast, no modifications, and NO replating for any reason. Measure Base Surface to Head Surface with calipers.

Port Inspection

If Ports appear substantially different, the Tech Inspector should follow up with a close inspection for any evidence of grinding to modify the port sizes. Small differences in sizes make very little difference in performance gains. Any DO actions should be based on obvious modification evidence.

Exhaust Port - Cylinder top Minimum Distance: 1.145" (29.08 mm)

Note 1: This measurement is taken from the top of the cylinder to the exhaust port opening. It is not intended to measure opening in relation to piston travel alone.

Note 2: Exhaust Valves may be plugged. Plug is a non-tech item. Plugs may have blades removed or angled to blend flow into passage. This does not allow for blending of plug to port all modifications to plug must be done prior to installation in cylinder. In some cases the blades may appear to provide a false reading of depth - this is OK as long as inspection does not indicate any grinding. CR125 Exhaust ports have a height that is controlled by the machining operation of the Exhaust valve and is very accurate in controlling port location.

Insert Approved Port Height Check Gage (1.140" Step) tool into Cylinder in line with Exhaust Port Center. Inspect through Port - Gage end should not extend past Port Opening at edge. Check both ports at highest points.

Combustion Chamber Profile

Using approved Shockwave 99 CR125 Cylinder Head Gage, inspect Parabola of Chamber Dome and Squish recess for apparent gaps greater the .005" deep. Competitor may clean off carbon build up with abrasive pad. Spark Plug sealing surface must be above spark plug stem of gage. The overall height is measured also. "The "go" portion of the stem of the profile gage should protrude above the spark plug sealing surface. The "No Go" portion of the stem should not."

Cylinder Head Gasket thickness is .010" +or -.001". OEM only.

Measure thickness of Head Gasket with calipers

Piston Deck Height

Cylinder Deck Minimum is .025" (.63mm)

Rotate flywheel to bring piston close, but not at, Top Dead Center. Set Depth Gage on Cylinder Deck with edge facing down over piston. Rotate piston to TDC and past. Piston impact with gage should not felt by inspector. Alternate method, measure depth at TDC with Depth Gage.

Piston inspection and dimensions

Flat Top design OEM Piston has window and cannot be replaced with non-window piston. Only direct 1999 OEM replacement allowed.

Distance from Top of Piston Pin to top of Piston: .807" (20.5mm) plus or minus .0025"

Slide piston pin out of piston with no more than 1/4" protruding.

Measure depth from top of piston to top of piston pin with caliper slide.

Piston Ring Minimum Thickness: .038" (.96 mm) as measured with calipers.

Stroke: 2.149" (54.59 mm) maximum

Piston may rock on pin. Measure depths directly above pin. Measure Piston depth at TDC. Measure Piston depth at BDC. Subtract TDC from BDC to get the stroke.

Bore: 2.129" (54.10 mm) Maximum

Measure with Inside Micrometer.

Allowable Base Gasket Thickness: .010" - .030"

Measure Base Gaskets with a caliper

2.0 Induction System

Carburetor

Max diameter 38.6 mm round bore only Approved carburetors are Keihin PWM, Keihin PWK, Mikuni TMX38

No modifications to Carburetor No polishing or machining of air intake allowed

Control point for measuring purposes is the first .450" of the Venturi diameter downstream from the slide. This .450" wide zone cannot exceed 38.6mm in diameter.

Carburetor Boot

The stock 1999-2002 CR125 30° Boot is recommended. As this part is optimal from the factory and measurements very subjective, there are no other restrictions on it.

For Seat Clearance Purposes, the RS125 Straight Boot or the RS125 5° boots are allowed. As a handicap the Stuffer Lobes of the Straight Boot and the 5° boot must be cut off flush with mounting surface and may not extend into Reed cage. SwedeTech RS Replacement Boot part number SRE – RS125 is allowed. Use SwedeTech tech tool SRE – T – RS125 for inspection.

3.0 Exhaust System

Pipe/Expansion chamber

Measure largest diameter of the drum/ dwell section (between convergence and divergence cones) with a flexible tape measure. Pipes may have obstructions such as mounting flanges, metal tags, seams, or weldments in the way. It is the competitor's obligation to assure there is an area where the circumference can be measured by tech.

4.0 Ignition

Stock 1999-2002 Honda CR125 Coil

Stock 1999-2002 Honda CR125 Capacitive Discharge Ignition (CDI) System.

Denso Part Number 071000-1410 should be legible on ID tag. CDI cannot be DQ'd over ID tag legibility. Sanctioning Org may take possession of CDI unit to test for illegal altering of the component. CDI Unit must be returned to owner or replaced with a new part within 30 days.

CDI Grid Swap

The Tech Steward shall have the option to collect CDI Units between heats and redistribute them at impound. This is at the Tech Steward/Promoters discretion.

Flywheel and stator.

Stock 1999-2002 Honda CR125

No material may be removed from Flywheel. Flywheel Key may not be machined to offset timing. Stator may be mechanically advanced or retarded but must remain in a fixed position while running. Stator Plate may be slotted for adjustment.

Spark Plug and Ignition Wires.

The spark plug manufacturer is open, but the plug must be commercially available and measure 18.5mm long by pitch M14 x 1.25. Exception: The spark plug washer may be removed to facilitate the use of a cylinder head temperature sensor and the gap of the electrode may be adjusted. Non-tech. No additional components may be electrically connected to the CDI or Coil. Only an inductive RPM sensor may be used.