

Road America Kart Club Kohler Engine Rules

- 1) Engine: Only the Kohler C6 XKE engine allowed and must be in box stock configuration.
- 1a) Machining and/or modifications to any engine components are not allowed, no aftermarket items allowed. Parts to be compared to known stock.
- 2) Only two maintenance items can be done to the engine (other than stock part replacement).
- 2a) Valve seat refinishing – single angle only and must maintain inside diameter of seat. Only the seat angle can be ground. (valve must remain stock)
- 2b) Use of Genuine Kohler oversized piston. (25mm .010in or 50mm .020in for worn cylinder wall blocks)
- 2c) Stock ring tensions cannot be changed by any means. Piston must be installed with arrow pointing towards the flywheel.
- 3) Carburetor: only stock #15 053 05 is allowed. Only stock air cleaner assembly is to be used it must be intact (no holes or bent plates) the stock cover must be attached. The factory green foam precleaner can be removed.
- 3a) All jets and internal parts to remain stock. (no machining or polishing allowed)
- 4) Cylinder head: intake and exhaust ports to remain as cast with no polishing or smoothing allowed (stock ports will have a small dimple look, not a smooth swirl pattern look). The head surfaces cannot be machined, and must maintain a minimum 3.259in between the valve cover surface and the head gasket surface.
- 5) Valve Train: completely stock (any valve lash setting permitted). Rocker lock nuts maybe double nutted or the newer style screw locking type.
- 5a) only stock camshaft #15 012 09 is allowed (no alterations). No F200 reground camshafts allowed.
- 6) Ignition System: completely stock (no altering coil mounting holes) any air gap allowed.
- 7) Flywheel: completely stock and in good condition (key and keyway must remain stock).
- 8) Exhaust: stock unaltered RLV B91 muffler must be used. Any header pipe is allowed as long as it doesn't protrude into the exhaust port of head, and the complete system is contained within the frame rails and bumper. (no slipper type pipe allowed)
- 9) Fuel Pump: only the stock fuel pump is allowed, and must remain in its stock mounting position (it can spaced no more than 1 inch away from head).
- 10) Clutch: any engine mounted dry clutch allowed.
- 11) Additional requirements: only stock factory components allowed in unaltered form. Any blueprinting to change parts to maximum or minimum Kohler tolerances is not permitted. All engine components and assemblies must meet Kohler's parts printed specifications and tolerances including gaskets. Recoil assembly to remain on engine and is to be the only means of starting engine. Only stock shrouds and baffles must be used and must be in their factory locations. (exceptions: the heat shield behind the head may be removed, due to stripped mounting holes)
- 12) Competitor is responsible for his or her engine to conform to these rules.
- 13) This is to be a spec. engine class. The propose is to have a relatively inexpensive engine package and a equal playing field. Please adhere to all the rules.

The following 2 pages contain the tech measurements that will used for tech inspection.

Engine Specific Tech Sheet for: Kohler C6 XKE Box Stock

Description: Single cylinder, two valve, four cycle. Machining and/or modifications to the engine components are not allowed unless otherwise specified in these rules.

Cylinder head requirements: The stock factory cylinder head assembly must be used. The intake and exhaust ports are to remain as cast with no polishing, sand/bead blasting, acid washing or smoothing of ports allowed. Factory deburring is allowed. Maximum inside diameter of exhaust and intake ports is .846 inch. Minimum thickness of cylinder head assembly from valve cover gasket surface to cylinder head gasket surface is 3.259 inch.

Bore and stroke: 2.665 inch maximum bore, 2.008+/- .010 inch stroke.

Carburetor requirements: The stock factory standard air cleaner assembly must be used in its stock configuration. No additional holes are allowed to be drilled or tapped into the air cleaner element or air cleaner base. Factory foam precleaner may be removed. Stock factory Keihin carburetor, Kohler Part Number 15 053 05, is to be used with no alterations. Original jets and emulsion tube must be used. Float height changes allowed. The slow jet hole size is 0.015 inch and the main jet hole size is .027 inch. Choke plate must be in place and functional. Machining, boring and polishing of carburetor bore is not permitted. Maximum venturi diameter .555 inch.

Fuel Pump: The stock factory Mikuni fuel pump Kohler Part Number 15 393 01 is to be used with the pulse line connected to the crankcase only. Fuel pump must be mounted as is from factory, spacer between block and pump is allowed but cannot raise the pump face higher than 1 inch.

Valve train: The stock factory breather system must be functional and used in its stock configuration. No catch tanks allowed. Stock factory intake and exhaust valves mandatory. No multiple cut angles or polishing to the valves permitted. Maximum intake valve diameter 1.053 inch. Maximum exhaust valve diameter .974 inch. Stock factory valve seats are mandatory but may be refaced. Maximum inside diameter of intake seat is .913 inch. Maximum inside diameter of exhaust seat is .835 inch. Any valve lash setting is permitted. Stock factory rocker arms and push rods are mandatory. Rocker arm minimum length is 2.146 inch. Stock factory, Kohler part number 220168, valve springs mandatory. Wire diameter is .094 inches. Stock, unaltered tappets only. Tappet diameter .830 inch maximum, .750 inch minimum.

Ignition system: Stock, unaltered ignition system only. Stock factory flywheel must be used with factory flywheel key in place. The flywheel keyway must not be altered in any way. Minimum width of flywheel key .125 inch. Painting and coatings other than minimum factor overspray is not permitted. Broken flywheel fins are not allowed. Minimum flywheel weight is 8.0 pounds.

Piston requirements: Stock Kohler factory pistons, rings and wrist pins mandatory. The maximum length of the piston skirt is 1.523 inch. The wrist pin maximum inside diameter is 0.378 inch, minimum outside diameter is .551 inch and minimum length is 1.586. Stock ring tensions cannot be changed by any means. Ring tensions to be compared to known stock component. Piston must be installed with arrow pointing towards flywheel.

Connecting rod requirements: Stock, unaltered factory connecting rod mandatory. Length 3.4268 inch minimum, 3.4284 inch maximum.

Crankshaft requirements: Stock, unaltered crankshaft required. Stock factory crank gear is to be used in its factory position. Rod journal diameter 1.218+/- .0025 inch.

Camshaft requirements: The stock factory camshaft, Kohler part number 15 012 09, mandatory with no alterations allowed. Max lift either lobe is .232 inch, measured at the valve. The camshaft tolerances can be inspected with the camshaft left in the engine. The maximum intake and exhaust valve lift is to be measured at the valve spring washers. Remove the valve cover and attach a long bolt or stud to one of the valve cover bolt holes in the cylinder head. Find Top Dead Center using bump method or with a dial indicator and then set the degree wheel. Attached the dial indicator to the stud and position over the valve spring washer. With the engine at TDC, set valve lash to zero clearance with adjusting nuts. Set the dial indicator at 0.000 inches. Rotate flywheel to measure maximum valve opening at the valve spring washer for both intake and exhaust valves. Maximum opening is 0.232 inches. This measurement will determine if rocker arm ratio is correct. Next the camshaft profile must be measured at the camshaft tappets. Remove the push rods and adjust dial indicator to measure tappet lift (an extension will be required to reach tappets). Be sure to measure parallel to tappet travel. With crankshaft at TDC set dial indicator to .000. Rotate crankshaft to indicated lifts below and record crankshaft location. The camshaft must fall within these parameters.

Camshaft Lift (inches)	Exhaust Limits (degrees)	Intake Limits (degrees)
.010	56 - 60 BBDC	14 - 20 BTDC
.050	27 - 31 BBDC	12 - 16 ATDC
.100	9 - 13 BBDC	32 - 36 ATDC
.150	9 - 13 ABDC	53 - 56 ATDC
.180	28 - 32 ABDC	70 - 74 ATDC
Max .210	62 - 78 ABDC	108 - 120 ATDC
.180	102 - 106 ABDC	148 - 152 ATDC
.150	120 - 124 ABDC	164 - 168 ATDC
.100	142 - 146 ABDC	6 - 10 ABDC
.050	162 - 166 ABDC	27 - 31 ABDC
.010	9 - 13 ATDC	58 - 62 ABDC

Block requirements: Block assembly must be stock as produced from the factory with no alterations. Repairs are permitted from damage that does not constitute a functional modification of the original block assembly. Offset, angle boring and/or circular machined grooving of cylinder are not allowed. Minimum distance between cylinder deck to top of piston at TDC is .008 inch.

Clutch: Any engine mounted dry centrifugal clutch is allowed.

Exhaust: The stock unaltered RLV B-91 series muffler is to be used with any exhaust header. Baffle plates must be in the original location and of proper size. The exhaust header is not to protrude into the exhaust port of the cylinder head. The exhaust system is to be inside the kart frame outside rails and rear bumper. No slipper type exhaust manifolds allowed. A support brace is recommended.

Fuel: Only pump gasoline is allowed and is a tech item. No alcohol, ethers or octane enhancers are allowed.

Additional requirements: Only stock factory components allowed in unaltered form. Blueprinting to change part to maximum or minimum tolerance specifications **is not permitted**. All engine components and assemblies must meet Kohler part print specifications and tolerances, including gaskets. Recoil assembly to remain on engine and is to be the only means of starting the engine. Only stock factory C6 XKE shrouds covers and baffles may be used in their original factory locations.