

*Extract from 2010 AKA Manual; Chapter 51 – Endurance Karting
Section 51.16*

51.16 Engine Specifications and Regulations – Briggs & Stratton Class

The only eligible engine is the Briggs and Stratton Animal, Model 124332.8003.01.

For use in events conducted by TEKA, every engine must have the Official TEKA seal on the crankcase and also on the cylinder head. Each engine will be delivered from TEKA with its own engine IDENTITY Log Book and TEKA serial number

Only Authorised TEKA engine sealers and Authorized Service Centres for Briggs and Stratton motorsport products are allowed to seal engines after carefully checking the engine according to the Technical Specification for the Briggs and Stratton Animal engine type. Special TEKA seals must be used. A record of any and all repairs / rebuilds to all motors is to be entered into the log book, signed, dated and stamped by the authorised service centre or TEKA engine sealer.

A list of Authorised Briggs & Stratton Service Centres is set out at Clause 51.16.4.

At race scrutineering, the driver is to present the engine with an undamaged seal and the engine with log book, showing the matching engine serial number, seal number, stamp and signature of the authorised TEKA engine sealer, who sealed the engine. This procedure helps to reduce scrutineering times at races, nevertheless in the case of a protest, it is possible for the scrutineers to open and check the engines before or after the race. Any post race scrutineering will be in accordance with this clause 51.16.

After checking the engines step by step to ensure it is in accordance with the Technical Specifications hereunder, the AKA Technical team and in conjunction with the staff of the Authorized Service Centre or TEKA engine sealer will reseal the engine.

Only genuine Briggs and Stratton components that are specifically designed and supplied for the Animal engine are permitted, unless otherwise specified. Neither the engine nor any of its ancillaries may be modified in any way.

‘Modified’ is defined as any change in form, content or function that represents a condition of difference from that originally designed. This is to include the addition and/or omission of parts and/or material from the complete engine assembly unless specifically allowed within these rules. .

Internal additions: no additional material may be added except in the case of engine repairs and shall only restore the engine or components to original specifications.

- The use of thermal barrier coatings/ceramic coatings on or in the engine and on or in the exhaust system is prohibited.
- The use of anti-friction coatings in or on the engine/engine components is prohibited.

Permitted additions: Chain guard, engine mount, and tachometer/hour meter, inline fuel filter, catch can mounting brackets and mounting brackets, within the limits specified in this document.

Non-tech items: non-original fasteners, circlips, washers, throttle cable and housing,

Fuel and pulse line (type and size) are allowed unless otherwise specified.

Shrouds: Flywheel shrouds must not be altered in any way to alter the airflow or change appearance.

Switch: The ignition kill switch may NOT be removed and must function. Remote engine kill switches are permitted however the standard kill switch must be retained and must function independently of any remote engine kill switch.

Cooling Fan: The only fan that is allowed is as stock and unaltered.

Valve Springs: Valve springs may not be heated and or stretched. Shimming is not permitted. The springs must be a Briggs and Stratton part No.26820

Bearings: Main bearings must remain as a press fit in the block after the engine has attained ambient atmospheric temperature. Loctite type compounds, pocket dimpling/knurling or any other form of retaining devices are NOT permitted. Main bearings must be standard, unaltered, genuine Briggs and Stratton parts manufactured and listed for the Animal engine.

Block. Block must be an original Briggs and Stratton Animal part No 555687. Block must be in original cast condition. Welding to repair cracks or breakage is allowed only in areas where the affected portion does not require re-machining and not in an area where the welding may be construed as a performance gain.

Cylinder Head: No alteration, modification is permitted to the head or head gasket surface. Valve seats may not be re-seated shallower in the head. The entire inlet and exhaust tract surfaces must remain STOCK. Thread saving devices in the spark plug hole are permitted but must be installed so that the combustion chamber volume test will be the same as with the original thread.

Head Gasket: Head gasket may not be altered in any way.

Valve Cover Gasket: Stock valve cover gasket must be OEM as supplied by Briggs & Stratton.

Valves: Valves must not be altered, polished, lightened, welded, grazed, or machined in any way. The original valve set angle must be maintained. The valve guides may be replaced as a means of repair but must be retained to standard dimensions. Lapping of valves / seats is permitted subject to the above limitations.

Piston and Rings: Re-sizing, knurling, or lightening of pistons is not permitted. The use of piston button or buttons is not permitted.

Coating of pistons is not permitted. Anodizing of a piston is not permitted. All three piston rings must be used, installed correctly, with the identification marks toward the head. Ring tension may not be changed by heating or other means. Ring gaps are not subject to technical inspection. The ends of each piston ring may only be altered in a way that appears to be the same as a known, stock, unaltered, ring for the engine. The piston oil control ring (third ring) may only be OEM rings, appropriate for the engine.

Camshaft: No alteration, additions, removal of material, modifications or machining of any kind is permitted.

Crankshaft Gear: The crankshaft gear can not be rotated to change the camshaft timing on this engine.

Flywheel: Must be stock and unaltered.

Shrouds: The cooling shrouds must be present and unmodified.

Ignition: Only OEM parts are permitted. Ignition timing can not be altered from stock. Coil mounts are not to be modified in any way so as to change ignition timing.

Spark Plugs: Spark plugs, leads and caps are free; however the plug reach is to be 19mm with 19.2mm being a maximum, measured from the upper gasket surface of the spark plug to the parallel lower squared edge of the threaded portion of the plug. No spark enhancers or boosters are permitted.

Carburettor: No alteration, modification, or machining of ANY kind is permitted of ANY part of the carburettor, unless specifically stated in this document. The choke assembly and all components must remain completely intact and stock.

The air filter is free. The air filter must be attached directly to the original air intake bell of the standard Briggs & Stratton carburettor. Welding and bracing of the inlet manifold is permitted provided that overall dimensions and location must be as per original, nor modified in any other way, nor may any material be removed from the inlet manifold in the process.

Fuel Systems: Pulse Pumps can be fitted using either the original hole used by the governors or by utilising the oil filler cap or the inlet manifold. If via the inlet manifold, the fitting used must be a commercial off-the shelf product with no modifications and must protrude into the inlet port no less than 0.5mm, thus making de-burring unnecessary. If the port is modified in any other way the engine will not pass scrutineering. No electric fuel pumps are permitted.

Spark Plug Gasket: A gasket and or a temperature gauge sensor must be installed under the upper surface of the plug. The height or thickness of the gasket or sensor must be greater than 0.1mm.

Clutches: All karts must be fitted with dry air cooled Noram GE20-219 centrifugal clutches. Clutches will be used to transmit the drive with a maximum engagement speed of not more than 2,500 rpm engines speed. The Noram GE20-219 clutch sprocket has 20 teeth.

The final drive sprocket for use in the 'Animal' class is fixed at 71 teeth.

51.16.1 ENGINE TECHNICAL SPECIFICATIONS

Bore: Maximum bore is 68.3mm

Stroke: Maximum stroke 27.9mm

Valves: Intake & exhaust valve length = 85.65mm + or - .25mm; Single angle cut **Intake Valve:** Head diameter = 26.8mm 'no-go', 27.05mm 'must-go'

Valve dish: 2.51mm to 3.01mm.

Height from angle of valve face to top of valve = 1.45mm 45 degree cut

Exhaust Valve: Head diameter = 23.75mm 'no-go' to 24mm 'must-go'

Valve dish = 2.15mm to 2.65mm

Height from angle of valve face to top of valve = 1.5mm

Valve Springs: Intake and exhaust valve spring maximum length = 23.65mm 'no-go', Wire diameter (measured in 3 places) 2.6mm – 2.7mm
I.D. of spring 15.65mm minimum to 16.1mm maximum

Valve Seats: Intake seat I.D. = 24.55mm must-go to 24.7mm no-go

Exhaust seat I.D. = 21.45mm must-go to 21.6mm no-go

Seat angles: 45 degrees, single angle cut.

Valve Lifters: Head = 20.8mm no-go to 21.85mm must-go

length = 38.5mm no-go to 38.75mm must-go.

Push Rod: 4.7mm– 4.8mm diameter; 143.2mm –143.6mm length

Connecting Rod: Length between axes = 83.5mm

Length from bottom of wrist pin to top of crankshaft journal = 61.45mm
minimum to 61.7mm maximum

Crankshaft: Main journal diameter: 27.8mm to 27.95mm

Cylinder Head: Depth of head at shallow part of head = 0.3mm minimum.
The measurement on the shallow side of the combustion chamber is taken with a depth gauge on the push rod side of an imaginary line drawn from dowel pin to dowel pin on the valve side of the dowel. It is also taken over the spark plug area.

Depth at floor of head = 8.1mm minimum.

Depth to top of valve seat = 9.15mm maximum to 8.5mm minimum

Head thickness measured from head gasket surface to head plate gasket surface = 61.5mm (measured in four places through valve guides and push rod holes).

Width of combustion chamber at the widest part across the valve seat area 67.05mm no-go at a depth of 5.1mm in the combustion chamber. Cylinder head combustion chamber volume is 28.5cc

Piston Rings: 2 compression and one oil ring used

Compression ring minimum width = 2.4mm

Compression ring thickness = 1.5mm to 1.65mm

Oil ring minimum width = 1.65mm

Oil ring thickness = 2.5mm to 2.6mm; Oil ring expander must be installed.

Piston: Minimum piston length =44.9mm

Measurement from top of piston to wrist pin bore (on circlip side of piston) = 16.7mm

Camshaft: Camshaft must be unaltered Briggs & Stratton and to the standard specifications as provided by Briggs & Stratton.

51.16.2 EXHAUST SYSTEM

Complete exhaust manifold and muffler assembly must be as homologated and as supplied by TEKA with all motors. All mufflers shall be tagged, stamped or engraved with TEKA permanent identification by TEKA. Muffler mountings and bolts are 'free'.

51.16.3 SCRUTINEERING PROCESS

(a) Pre-Race Scrutineering

TEKA Engine Log Books, one for each engine, must be presented at Pre-Race Scrutineering and when requested by AKA Scrutineers.

(b) Rebuilding & Resealing

B&S Animal engines can be taken to an engine builder and rebuilt to standard specifications. Full AKA homologated B&S Animal specifications are available on the TEKA website. TEKA currently have (3) nominated B&S Motorsport Dealers that are fully equipped to rebuild, service and seal Animal engines. Contact details are available on the TEKA website. Engine Builders are required to fill out the service part of the Engine Log Book, including the type of service performed and any parts required. Engine Builder contact details must also be added to Log Books as part of its service. It is the competitor's responsibility to insure that Engine Log Books are filled out correctly.

Only a TEKA sanctioned Engine Sealer or nominated B&S Motorsport Dealer may seal your Animal engine. To ensure fairness for all competitors and engine sealer may NEVER drive or compete in a kart that has been sealed by them. Furthermore no Animal engines can be sealed by the same Engines Sealer more than (2) consecutive times.

(c) Post-Race Inspection

As per AKA rule 51.15, TEKA reserves the right to take away and inspect any Animal engines at the completion of an event. Competitors are advised to carry their original B&S engine boxes to race meeting to assist TEKA with transportation. Engines impounded by the scrutineers will be placed into the transport box, the box sealed until ready for off-site inspection in accordance with AKA processes. The corresponding Engine Log Book must be accompany each engine as part of the technical inspection process. Competitors will receive a receipt for each engine taken and advised of a time and place to attend the technical engine inspection.

After an engine passes inspection - unless otherwise agreed with the competitor - engines will be returned re-sealed at no cost to the competitor. Inspection details and new seal numbers are recorded into the Engine Log Book.

Note: Mandatory TEKA technical inspections and subsequent re-sealing does not reset an engine's consecutive engine sealing count.

(d) Anomalies

In the event that an engine is deemed to be illegal the competitor will be disqualified from the event. The AKA Technical Scrutineers decision is final. If an engine is deemed by the scrutineers to be illegal, all costs incurred in the inspection are to the account of the competitor. The so deemed illegal motor will be returned to the competitor unassembled and may be returned for re-scrutineering and certification after any illegalities have been corrected.

51.16.4 APPROVED BRIGGS & STRATTON MOTORSPORT DEALERS FOR TEKA SEALING

The following Briggs & Stratton Dealers are authorised to carry out sealing of motors in accordance with this chapter:

Norwest Mowers
Unit 3, 1 Forge St.
Blacktown, 2148
Ph: 02 9622 5285
Contact: Kevin
Williams

Fitzgerald Motors
9 Fitzgerald St.
Windsor, 2756
Ph: 02 4577 3401
Contact: Murray Hayes

Unanderra Mower
Centre
51 Princes Hwy.
Unanderra, 2526
Ph: 02 4271 1340
Contact: Tom Hamilton