



L206 Purpose-Built Racing Engine

*Cost-effective performance
on a level playing field...*

Briggs & Stratton Racing LO206 Canada Engine 2011 Class Regulations



The Local Option 206 (LO206) kart racing engines are purpose-built for kart racing. The engines are hand-built in Milwaukee, Wisconsin using tooling and dies specifically for racing thus providing consistency in component manufacturing. This, in combination with a robust engine-sealing package, establishes a "level playing field" and budget control for racers.

Briggs & Stratton (B&S) racing engines are manufactured for sanctioned racing only. B&S does not recommend the products referenced herein to be used for an application outside of kart racing as serious injury or death could result.

This rule package has been prepared by Briggs and Stratton Racing and is intended to establish the basis for the technical control of the classes in which the LO206 and LO206 Junior engine is specified.

Unless these rules state that you can do it, you cannot do it.

This rule package is published by ASN Canada FIA for the convenience of their affiliated organizations in Canada. ASN Canada FIA is not responsible for the accuracy of the specifications contained herein.



Published – January 27, 2011

CONTENTS

1.	Briggs and Stratton Racing Class Structure	3
2.	These Regulations Are the Only Regulations.....	3
3.	Briggs & Stratton LO206 Product Availability	4
4.	General Rules.....	4
5.	Things That Are NOT Permitted	4
6.	Engine Sealing	5
7.	Technical Inspection Tools	5
8.	Engine Ignition Switch.....	5
9.	Engine Air Filter.....	5
10.	Engine Cooling Shrouds/Blower Housing	5
11.	Engine Fuel.....	5
12.	Engine Oil.....	5
13.	Oil Breather	6
14.	Oil Catch Container	6
15.	Carburetor Overflow.....	6
16.	Fuel Pump	6
17.	Shrouds & Covers	6
18.	Use of Helicoils	6
19.	Carburetor & Intake Manifold	6
20.	Valve Lift & Ignition Timing	7
21.	Cylinder Head	8
22.	Head Gasket	8
23.	Ports	9
24.	Valves	9
25.	Valve Springs.....	10
26.	Rocker Arms, Rocker Ball and Rocker Arm Studs	10
27.	Push Rods.....	10
28.	Engine Block	10
29.	Camshaft Profile Limits.....	11
30.	Flywheel	12
31.	Ignition System.....	12
32.	Crankcase.....	13
33.	Piston/Deck	13
34.	Cylinder Bore	13
35.	Clutch	13
36.	Starter	13
37.	Exhaust Header	13
38.	Exhaust Silencer.....	14
39.	Exhaust Protection.....	14
40.	Torque Specification Guideline.....	14
41.	Technical Inspection Tools	14

1. Briggs and Stratton Racing Class Structure

The following classes are recommendations only. Kart Racing organizations can alter the class structures to suit their driver licencing protocols.

Class	Age	Weight (Pounds)	Engine Package	Technical Configuration
Novice	8 to 11	235	LO206 Junior with carb lock	RLV pipe (#5507) Slide (#555728) 4,100 RPM Rev Limiter
Junior 1	10 to 13	275	LO206 with carb lock	RLV pipe (#5507) Slide (#555733)
Junior 2	13 to 15	300	LO206 with carb lock	RLV pipe (#5507) Slide (#555734)
Senior	15 and up	340	LO206	RLV pipe (#5507) Stock slide (#555590)
Masters	30 and up	360	LO 206	RLV pipe (#5507) Stock Slide (#555590)

Novice, Junior 1 and Junior 2 require the installation of the locking cap Part #555726 on the carburetor slide cover. It is not permitted to run the classes without the specified slide and locking cap. The locking cap must be tightened. A seal can be utilized at the discretion of the organizer, or alternatively painted by the technical officials.



2. These Regulations Are the Only Regulations

- a. Only the B&S Racing Department in Milwaukee can make changes to the technical specifications herein.
- b. B&S dealers and their agents are not authorized to alter, verbally or otherwise, any technical specifications or competition rule herein.
- c. Should any B&S literature, catalogues, manuals, videos, etc. be different than these regulations, these regulations take precedence.
- d. Changes, corrections, addendums, etc. will be submitted to ASN Canada FIA for publication and will become effective on a date specified.

3. Briggs & Stratton LO206 Product Availability

The LO206 engine products and service parts are available only through the Canadian distributor and authorized dealers.

Sales and dealer enquiries should be addressed to:

Power Source Canada
2815 Bristol Circle, Unit 1
Oakville, ON Canada L6H 6X5
Tel 905.829.0006
Fax 905.829.8611

Power Source Canada (B.C.)
300 - 1628 Derwent Way
Delta, B.C., V3M 6R9
Tel 800.663.9700
Fax 800.563.1361

Email info@powersourcecanada.ca

Toll Free Customer Service: 1-800-663-9700

4. General Rules

- a. The terms stock, original equipment, OEM, unaltered, etc, refer to Original Equipment supplied by Briggs & Stratton.
- b. Only the original equipment Briggs & Stratton LO206 #124332-8201 engine is allowed in the classes recommended herein.
- c. All parts must be unaltered Briggs & Stratton LO206 parts specifically made for this engine by Briggs and Stratton. No aftermarket parts to be used unless specified in these regulations.
- d. All parts are subject to comparison with a known stock part.
- e. All engine safety and regulations must be followed according to ASN Canada FIA karting regulations. Example: Chain guards.

5. Things That Are NOT Permitted

- a. Tampering of the factory installed engine seals (2).
- b. Addition or subtraction of material in any form or matter.
- c. "Blueprinting" unless stated herein.
- d. Modification to or the machining of any parts in order to bring them to stated minimum/maximum specification, (or for any reason).
- e. Machining or alteration of any kind to the engine or replacement parts unless specifically stated herein.
- f. Deburring, machining, honing, grinding, polishing, sanding, media blasting, etc.
- g. Sandblasting or glass-beading any interior engine surfaces.
- h. No device may be used that will impede, or appear to impede, airflow to the engine cooling system.

6. Engine Sealing

There are two custom Homeland Security Tier III rated seals installed at the factory. Tampering of the seals is not permitted. Should the seals be tampered with, the engine is no longer eligible for competition. Should an engine require dismantling for any reason that requires breaking of the seals, contact Briggs and Stratton at:

Mr. David Klaus, Director, Briggs & Stratton Racing
Briggs and Stratton, Milwaukee, Wisconsin
Telephone : (414) 479-1209 – Email : Klaus.David@basco.com

7. Technical Inspection Tools

Briggs and Stratton have made available a number of tools for the convenience of technical checking of components when necessary. They are indicated throughout the rule thusly: **Tech Tool #**. See Section 41 for tool description. The tools are available from:

Sox Racing
2223 Platt Springs Rd.
West Columbia, SC 29169
(803) 791-7050

Scott Racing
20326 168th St.
Basehor, KS 66007
(913) 724-7121

8. Engine Ignition Switch

The B&S ignition switch and wires must remain in stock location. It is not permitted to alter the OEM wiring.

9. Engine Air Filter

The only air filter permitted is the Briggs and Stratton Green Air Filter Part #555729. No modification to the filter element is permitted.

A protective shield may be attached for wet-weather competition. It is not permitted for the protective shield to create any ram-air effect.



10. Engine Cooling Shrouds/Blower Housing

All pieces of the engine cooling shroud/blower housing must be stock B&S and properly installed.

11. Engine Fuel

Premium Gasoline no greater than 94 octane sold at normal roadside fuel stations open to the public. The addition of fuel additives in any manner is not permitted. Fuel dispensing location may be specified in Event Supplementary Regulations.

12. Engine Oil

High-quality synthetic oil within a 5W-20 range. No oil additives are permitted.

13. Oil Breather

Oil breather must vent to a catch container.

14. Oil Catch Container

An oil overflow catch system is mandatory. Overflow tube must run from the crankcase breather to a catch container. The catch-container must be vented to atmosphere.

15. Carburetor Overflow

Carburetor overflow must be vented to the catch container.

16. Fuel Pump

It is recommended but not mandatory that Walbro fuel pump, B&S part number #557033 be used. Other pumps are permitted.

It is prohibited to pulse from the intake manifold.

The fuel pump must be pulsed from a pulse fitting mounted on the oil fill fitting located on the engine side cover. Aftermarket one-piece filler/pulse fittings such as shown on the right are permitted.



17. Shrouds & Covers

Engine Shroud may be painted any color. Engine shroud, covers, and control panel must be intact and not modified. Any bolt, with the exception of the head bolt, that is used to secure sheet metal shrouds and covers may be replaced with larger diameter bolts.

No taping or covering of the rewind shroud is permitted.

18. Use of Helicoils

It is permitted to use Helicoil thread inserts for shrouds, valve cover, oil drain, oil fill holes, blower housing, and exhaust pipe attachment studs on the head and lower brackets.

19. Carburetor & Intake Manifold

The B&S stock Walbro PZ22 carburetor part #555658 is the only carburetor permitted. No alterations allowed unless stated below. All parts will be compared to a stock known B&S part for eligibility. This includes the nozzle, emulsion tube, jets, float, float needle and all other carb parts. It will be allowed however to adjust the float height by means of bending the small tab on the float arm.

Slide must remain B&S stock unaltered. B&S stock unaltered aluminum needle is required part number 555602 marked #BGB.

Technical Item	Description	Tech Tool
a. Needle Jet C-clip	Needle Jet C-clip must be properly installed but may be installed at any of the 5 factory settings on the needle jet.	
b. Throttle cable cap	Throttle cable cap on the top of the carburetor must be used and properly installed in tight position.	
c. Choke	Choke: OEM unaltered, but lever may be fastened open with a spring, rubber band, wire, etc.	
d. Idle pilot jet	Idle pilot jet – #32, hole size is 0.130" no go.	
e. Main jet	Main jet – #95, hole size is .0380" plus/minus .002.	
f. Main nozzle and Emulsion tube	Main nozzle – OEM stock unaltered – hole size = .101 min and .103 max inches. No drilling, reaming, slotting or oblonging of hole. Emulsion tube – OEM stock unaltered 4 small holes = .018 min inches to .020 max inches 4 big holes = .026 min inches to .028 max inches.	
g. Venturi Measurement	Venturi Measurement: Vertical: .792 max inches.	A8
	Horizontal: .615 max inches at widest part	A8
	Horizontal: .602 max inches at narrowest part.	A20
h. Air pick off hole	Air pick off hole - .061 max inches and .057 min inches	A9
i. Throttle bore	Throttle bore – Must be as cast and bore max diameter = .874 inches.	A7
j. Venturi idle fuel hole	Venturi idle fuel hole = .036 inches max	
k. Air filter	Air filter: Only GREEN air filter, part # 555729 is allowed. Filter adapters are not allowed, filter must attach directly to carburetor air horn	
l. Carburetor overflow	Carburetor overflow: Must be vented to a catch container.	
m. O-Ring	O-Ring part number B&S part # 555601 is required and must be unaltered.	
n. Intake manifold	Intake manifold – max length = 1.740 inches min to 1.760 inches max	A12
	Intake manifold – bore diameter = .885 inches min to .905 inches max	A11
o. Choke Bore	1.149	A7
p. Front Slide Length	1.148	A10
q. Widest part of Combustion Chamber	2.640	A30

20. Valve Lift & Ignition Timing

- a. Maximum valve lift is checked from the top of the valve spring retainer. Valves must be adjusted to zero clearance.
- b. Valve Lift: Camshaft check is taken at the valve spring retainers. With the lash set at zero, the movement of the valve spring retainers may not exceed the following: Intake and exhaust: .252 inches maximum.
- c. Checking ignition timing. Install degree wheel, using positive stop method. ignition. With the right edge of the magnet, (not the magnet holder), aligned with the right edge of the notch of the right leg of the coil, the engine must be from 23 degrees BTDC to 27

degrees BTDC. Only the B&S stock keyway and unaltered flywheel are permitted to be used.

- d. Checking the camshaft at pushrods. Push gently down on dial indicator stem to ensure that there is no lash when push rods are going down.

21. Cylinder Head

- a. The ONLY head casting for the B&S LO206 herein is the 'RT-1', cast into the head just off the head gasket surface (towards the rear of the engine, PTO side). The overall head thickness is 2.430".
- b. Inspect retainers for alterations that would increase valve spring pressure - .055 to .075 maximum flange thickness. Both intake and exhaust must have OE stock B&S valve keepers.
- c. Unaltered B&S part #555552 (exhaust) and #555551 (intake) can be checked for appearance, weight, and dimensions.

No machining, polishing, easing, or titanium valves allowed.

Valve surface must be unaltered factory ground and have one 45 degree sealing surface only.

There will be no other angles ground on any part of the valve.

Tech Tool A22.

- d. Valve Guides: Replacement of valve guides with B&S part #555645 only is allowed. Maximum depth from the head gasket surface to the intake valve guide is 1.255".

22. Head Gasket

- a. Unaltered B&S part #555723 is the only head gasket allowed.
- b. Minimum gasket thickness between head bolt holes .049 inches. Measurements are to be made with a micrometer in four places between the head bolts, from the inside of the gasket.
- a. Cylinder head #555635 must be B&S stock unaltered and be "as cast" with factory machining marks left on the head gasket surface are a tech item.
- b. Hard Carbon may be scraped from head before measuring.
- c. Depth of head at shallow part of head .030 inch minimum. This measurement to be taken with a depth gage on both the combustion side and spark plug side of cylinder head.
- d. Depth at floor of head is .340 inch minimum.

23. Ports

a. No deburring, machining, honing, grinding, polishing, sanding, media blasting, etc.

b. The transition from intake bowl to port must have factory defined machining burr at this junction.

No addition or subtraction of material in any form or matter.

No alterations of any kind may be made to the intake or exhaust ports.

c. Intake Port: Maximum diameter measurement = .918 inches max.

Tech Tool A6.

d. Exhaust Port AS CAST.

Exhaust Outlet - .980 – **Tech Tool A6.**

e. Valve Seats. Intake and exhaust: Must remain factory specification with one 45 degree angle only. Multi-angle valve seats are not permitted.

f. Intake valve seat diameter inside = .966 to .972 inches.

Tech Tool A2.

g. Exhaust valve seat diameter inside = .844 to .850 inches.

Tech Tool A1.

24. Valves

a. Intake Valve

Minimum Weight of Valve :	29.26 grams
Diameter of valve stem :	.246 to .247
Diameter of valve head :	1.055 to 1.065 inches Tech Tool A17
Diameter of valve seat :	.965 to .972 inches ID
Valve length :	3.272 +/- .010 inches
Height from angle of valve face to top of the valve :	.060 - Tech Tool A26

b. Exhaust valve

Minimum Weight of Valve :	28.62 grams
Diameter of valve stem :	.246 to .247
Diameter of valve head :	.935 to .945 Tech Tool A18
Diameter of valve seat :	.844 to .850 inches ID
Valve length :	3.272 +/- .010 inches
Height from angle of valve face to top of the valve :	.060 – Tech Tool A27

25. Valve Springs

- a. Valve Springs are single coil stock, unaltered B&S part # 26826. Must be identical in appearance to factory part and have 4.25 to 4.75 coils in stack.
- a. Spring Wire Diameter: .103 to .107 inches
- b. Valve spring length: .930 max inches – **Tech Tool A15**
- c. Inside diameter: .615 to .635 inches

26. Rocker Arms, Rocker Ball and Rocker Arm Studs

- a. Rocker arms must be unaltered stock B&S part #691230 and will not be altered in any way.
- b. Rocker studs must be stock, unaltered stock B&S part #694544 and in stock location.
- c. Rocker Ball must B&S stock. Diameter .590 inch min. to .610 inch maximum. **Tech Tool A16.**
- d. Rocker arm mounting positions may not be altered in any manner. No heli-coiling of mounting holes. No bending of studs.
- e. Rocker arm stud plate must be bolted to the head with one, OEM stock B&S gasket only - no alterations. Maximum thickness of gasket is .060 inches.
- f. Rocker arm – overall length 2.865 inches minimum.
Tech Tool A13.

27. Push Rods

- a. Push rods must be unaltered stock B&S part #555531.
- b. Push rod length 5.638 minimum inches to 5.656 maximum inches.
Tech Tool A5.
- c. Push rod diameter .185 minimum inches to .190 maximum inches.

28. Engine Block

- a. Engine block must be unaltered “as cast” B&S factory machined condition. There must be no addition or subtractions of metal or any substance to the inside or outside of the cylinder block.
- b. Both (2) B&S engine seals must be present with both the fastener and seal in “as shipped” from the factory location and condition. Any defined tampering with the fasteners or damage to the wire/seal itself (example: delaminated hologram) are grounds for disqualification.

Take proper care of your seals to ensure their integrity. It is recommended that you wrap your seals (using a plastic bag, etc.) to prevent exposure to harsh solvents such as carb cleaner, etc..

- c. Machining of deck surface is NOT permitted. Piston pop up can be .005 inches maximum. Piston pop-up to be checked with flat bar in center of piston parallel to piston pin and then again checked 90 degrees to piston pin. **Tech Tool A25**.

Angle milling or peak decking is not allowed.

- d. Carbon build-up can be removed before pop-up is measured as long as material is not removed from the piston.

Exception – Competitors can deburr the manufacturing part number/marks IF needed as long as:

- Removal does not extend beyond the defined script area.
- De-burring does not extend below the original piston surface area.
- The original part numbers and script are still clearly visible.

- e. Cylinder bore will not be bored oversize
- f. Cylinder bore will not be re-sleeved.
- g. Cylinder bore position is not be moved or angled in any manner.
- h. Cylinder bore dimension: - 2.697 inches maximum for entire length top to bottom.
- i. Maximum stroke is 2.204". Push piston down to take up rod play. Check stroke on BDC to TDC. **Tech Tool A21**.

29. Camshaft Profile Limits

Push gently down on dial indicator stem to ensure that there is no lash when push rods are going down.

Intake lift		Exhaust lift	
0.006	59 to 49 BTDC	0.006	101 to 91 BBDC
0.020	16 TO 12 BTDC	0.020	59 TO 55 BBDC
0.050	.5 TO 4.5 ATDC	0.050	43 TO 39 BBDC
0.100	17 TO 21 ATDC	0.100	26 TO 22 BBDC
0.150	33.5 TO 37.5 ATDC	0.150	9 TO 5 BBDC
0.175	43 TO 47 ATDC	0.175	1 TO 5 ABDC
0.200	54 TO 58 ATDC	0.200	11.5 TO 15.5 ABDC
0.225	68 TO 72 ATDC	0.225	25 TO 29 ABDC
MAX LIFT	0.257	MAX LIFT	0.257
MIN LIFT	0.252	MIN LIFT	0.252

Intake lift		Exhaust lift	
0.225	38 TO 34 BBDC	0.225	76 TO 72 BTDC
0.200	24.5 TO 20.5 BBDC	0.200	62.5 TO 58.5 BTDC
0.175	14 TO 10 BBDC	0.175	52 TO 48 BTDC
0.150	4.5 TO .5 BBDC	0.150	42 TO 38 BTDC
0.100	12 TO 16 ABDC	0.100	25.5 TO 21.5 BTDC
0.050	29 TO 33 ABDC	0.050	8.5 TO 4.5 BTDC
0.020	45.5 TO 49.5 ABDC	0.020	8 TO 12 ATDC
0.006	81 to 91 ABDC		

30. Flywheel

- No modifications are allowed to the flywheel.
- The minimum weight of the flywheel, fins and attachment bolts is 4 pounds 1 ounce.
- Stock B&S part #555683 only. No machining, glass beading, sand blasting, painting or coating of flywheel is allowed.
- A flywheel fan, B&S part #692592, with broken fins must be replaced.
- Stock, unaltered B&S flywheel key with the B&S logo is required. Width of the key allowed is .1825"-.1875". No offset keyways allowed.

31. Ignition System

- Unaltered B&S stock ignition** part #555718 is mandatory. Only "GREEN" ignition module allowed. Maximum RPM: 6,150.
Exception – Novice LO206 class requires the use of unaltered B&S stock ignition part #555725 (BLACK in color). Maximum RPM: 4,150 with 50 RPM tolerance.
- Coil or its position**, other than air gap may not be altered in any way. Coil mounting bolts must be stock and cannot be altered in any way to advance or retard timing. Attachment bolts and/or bolt holes may not be altered.
- Spark plug:** Only the B&S unaltered factory spark plug part number #491055 - Champion RC12YC is permitted. Sealing washer must be in place as from factory.
- Magneto air gap** is non-tech (recommended clearance .0140")
- Checking ignition timing:** Set with a degree wheel on the engine with a piston stop inserted in the spark plug hole. With the left edge of the right coil leg aligned with the right edge of the right

magnet, the engine must be from 23 degrees BTDC to 27 degrees BTDC.

- f. **Spark plug connector:** Only the OEM B&S part #555714 is permitted.

32. Crankcase

Crankcase and cover must be B&S stock, unaltered, "as cast in factory" condition. No alterations or subtractions of metal or any other substance to crankcase cover.

33. Piston/Deck

- a. Stock standard bore unaltered B&S piston part #555660 only.
- b. No modification or material removal from the piston is allowed.
- c. Arrow on the piston must point towards flywheel side of the engine.
- d. No machining of the deck surface is permitted. Factory Machining marks ARE a tech Item.

34. Cylinder Bore

B&S Stock bore is 2.690". Allowance for wear is permitted up to 2.697".

35. Clutch

- a. Novice class must use the supplied Max-Torque clutch, part #555727. No alteration to the clutch is allowed, except springs.
- b. Junior 1, Junior 2, Senior, and Masters classes can run any rim centrifugal clutch with a maximum of 9 springs and 3 shoes. No alteration to clutch allowed, except springs. Clutch coolers are not allowed.

36. Starter

Recoil starter, B&S part # 695287, must be retained, as produced and intact. Starter maybe rotated.

37. Exhaust Header



- a. Header must be RLV Model 5507 for all classes.
- b. Gasket and/or silicone allowed to seal header to head.
- c. Studs or bolts are permitted to fasten head to head. Bolts or nuts must be safety wired.
- d. Header support brace is mandatory.

38. Exhaust Silencer



Silencer must be RLV B91 with round baffle holes only.

39. Exhaust Protection

The exhaust header and silencer must be wrapped with insulation material.

40. Torque Specification Guideline

DESCRIPTION	WRENCH / SOCKET SIZE	TORQUE
Air Guard	7mm	40-50 lb-in. (4.5-5.6 Nm)
Blower Housing	10mm & 3/8"	60-110 lb-in. (7-12.5 Nm)
Carburetor (to manifold)	10mm	80-110 lb-in. (9-12.4 Nm)
Connecting Rod	T27	115-120lb-in. (13 Nm)
Cylinder Head Bolts	10mm	200-220 lb-in. (20-27 Nm)
Exhaust Brace Screws	10mm	95-125 lb-in. (11-14 Nm)
Exhaust Stud	10mm	95-125 lb-in. (11-14 Nm)
Flywheel Nut	15/16"	55-75 ft-lbs. (74.5-101 Nm)
Flywheel Fan	10mm	180-240 lb-in. (20-27 Nm)
Intake (to cylinder)	5mm Allen	70-90 lb-in. (8-10.2 Nm)
Oil Drain Plug	3/8"	100-125 lb-in. (11-14 Nm)
PVL Module	7mm	20-35 lb-in. (2.3-4 Nm)
Rocker Arm Stud	7/16"	90-120 lb-in. (10-14 Nm)
Rocker Arm Plate	10mm	70-90 lb-in. (7.9-10.1 Nm)
Rocker Arm Set Screw	1/8" Allen	50-70 lb-in. (5.6-7.9 Nm)
Spark Plug	5/8" Deep	95-145 lb-in. (11-16.4 Nm)
Slide Cover	10mm	95-125 lb-in. (11-14 Nm)
Starter Gear	#2 Phillips	35-53 lb-in. (4-6 Nm)
Top Control Plate	10mm	70-90 lb-in. (8-10 Nm)
Valve Cover	10mm Lower & 3/8"	30-60 lb-in. (3.5-7 Nm)

41. Technical Inspection Tools

Refer to separate document illustrating the Technical Inspection Tools