Super Stock Briggs Engine Tech Rules:

Jr. and Sr. Super Stock Briggs classes at Sugar River Raceway (SRR) are run with Box Stock, not Blueprinted engines. Also not to be confused with WKA or IKF 'Stock' classes, which could be called Blueprinted or modified as compared to Box Stock.

Legal Engine Models

130-232
135-232
135-230

Mandatory Engine Spec Numbers

1536 or 1541 - 1991 Models
5101 or 5102 - 1992 Models
5111 or 5112 - 1993 Models
1011 or 1012 - 1994 Models
7004 - 1995 & 1996 Model Raptor I
7014 - 1997 & 1998 Model Raptor II
7124 – 1999, 2000, 2001 & 2002 Model Raptor III
8124 – 2003 to current

Engines can be "cool bore", or IC, which is the steel sleeved engine.

Engines Are Run "Box Stock"

- The block cannot be decked.
- The intake port must be untouched and compare visually to a known stock Briggs port (exception for Super Stock in 2006, see rule change later in this manual).
- Even though a carburetor bore size is listed, the venturi bore must be untouched. No polishing or machining allowed.
- A key must be in the flywheel.
- A stock non-reground, non twisted camshaft must be used. Illegal cams will be confiscated in tech. We reserve the right to replace any cam with a new Briggs cam in an unopened shipping box.

Super Stock Tech Change History

- In 2000 the Super Stock class may run up to 30° of total ignition timing. This may be accomplished by adding an advanced or offset flywheel key. A flywheel key must be used.
- In 2001 a second exhaust header can be used. This header is currently available under Robertson Torque Tubes part number AR-MC. The dimensions of this header as listed below shall constitute a legal header. Should the current AR-MC header ever be changed Sugar River Raceway will either develop a new source for this same header or change the tech rules to reflect the change. The following tech will be used starting in 2001. The length of the smallest diameter of the header, measured on the outside of the radius shall be approximately 15". The inside diameter of the header shall be measured using snap gauges and a micrometer. The minimum diameter of the small stage is .900". The minimum inside diameter of the second stage is 1.125". The minimum inside diameter of the last or largest stage is 1.240".
- An RLV silencer must be used on both legal headers. Models RLV-91L or RLV-91XL may be used. Silencer must be stock as shipped with all baffles installed. Silencer baffle holes are .1285" maximum all baffles.

- New in 2001 all headers must be fastened with drilled and safety wired bolts.
- In 2001 a +.010" oversize piston may be used. Either Raptor II or III style.
- In 2001 the cylinder head spec will be the same as WKA's. Dimensions are listed above in the body of this tech manual.
- In 2002 only the Robertson Torque Tube #AR-MC and corresponding 1 5/16" RLV silencer is legal. Old straight header can not be run.
- In 2004 a +.035" oversize piston may be used in Super Stock. This is done to lengthen the service life of any cool bore motors still in use. In 2006 this rule will extend to the Box Stock Classes as well.
- Addition to Intake Port rule for Super Stock Classes 5-10-06. Due to the last production run of Briggs Raptor engines in which Briggs cleaned up port shape and casting flash with a tool which produces different shape ports, this rule is being implemented. We will use the current WKA port rule as it reads, and listed below, from the 2006 tech manual. This comes from section 700 4-Cycle Engine Specifications and Regulations. Section 701.28 and 701.28.1 shall apply. This same section 701.28 shall not apply to the exhaust port for this SRR Super Stock Class Tech.
    - 701.28 Ports: Porting allowed. Ports surfaces are non-visual tech item. No addition of material allowed. Block may no te machined or altered on intake or exhaust port 'gasket mating' surfaces. No grinding is allowed on underside of valve seat. No holes in poets allowed. If port is pin-punched, it may not be done in a manner to prevent entry of a No-Go into port area.
    - 701.28.1 Intake port .880" No-Go.
- In 2007 change to coil ohm reading. New range 2000 minimum, 3200 maximum. Red aftermarket coils not allowed.
- In 2007 change to cam max lift and easy spin. 40 degree duration mandatory on easy spin check vs. 30 per old rule. 0.231" max lift on both intake and exhaust side of cam. Old spec was 0.233".
- In 2007 FelPro head gasket allowed.
- In 2007 the new Briggs Chinese sourced carburetor is **not** legal. This carburetor became available in 2006 and was not readily accepted by WKA due to changes in air horn and throttle shaft and throttle blade.
- In 2007 entrants using blocks that have been decked/machined must declare this before the season starts. Any such block will be marked/numbered and allowed to run as long as it meets the piston pop-up rule. After this grandfather period is over any competitor bringing a decked block to tech that hasn't been declared and marked will be deemed illegal.

SUPER STOCK CLAIMING RULES

Engine and Clutch Claiming

Any engine or clutch can be claimed by any competitor in the Super Stock classes before the feature race. The race director should be contacted to initiate this process. A deposit in the amount of the claim must be made at this time in cash, check or by credit card. A receipt for the deposit will be given.

After the feature, the competitor will be informed that some of his/her equipment has been claimed.

Next, it will be inspected, and, if legal, it will be delivered to its new owner. The funds on

deposit will then be turned over to the person whose equipment was claimed.

Any competitor refusing an engine claim will not be allowed to run in a box stock class for the next six weeks.

***CLUTCH CLAIM**	Super Stock clutch claim is $135
****ENGINE CLAIM PRICE**	Super Stock engine claim will be $400

**Super Stock engine claim price is for engine less header & muffler, air cleaner base, air filter, clutch, motor mount, chain guard, throttle linkage, tank supports, carb savers or catch tanks.

SRR TECH INSPECTION PHILOSOPHY

To follow is a tear down checklist. This checklist is not intended to replace the Tech Manual. If a complete tear down is required, then each and every step listed would be performed.

However, the goal of tech is to keep everyone honest, so many, even most, techs will be for a few specific items on each race day.

The purpose is to insure legality in the simplest manner possible, and not to send everyone home with his or her engine in a box so they have to pay someone to put it back together.

Tech will not be conducted so that the engine builders on the Tech Committee can go on a crusade to see why someone else's engine is a winner.

The moral here is that a super stock Briggs can be run and raced successfully for a ½ season or more without ever having been apart.

Briggs & Stratton Super Stock Technical Inspection

NOTE: This checklist is not intended to replace the Tech Manual, but is designed to provide a guide to the order in which an engine should be teched.

- Remove clutch, oil, and fuel.
- Remove air cleaner - inspect for velocity stack, ram air, etc.
- Remove exhaust. Header will be checked to make sure it is stock Robertson Torque Tube model #AR-MC. Header muffler combinations will be checked to see that nothing extends into the exhaust port, and also length and tube size. RLV silencer must be used and with all baffles intact.
- Remove flywheel shroud - inspect for flywheel guard, heat shroud, cylinder shroud, and coil air vane.
- Remove carburetor and tank assembly.
- Remove fuel tank - inspect internal bowl for position. Check carburetor to tank gasket. One or two permitted. Bracing of tank permitted. No cutting of gas tank permitted.
- Remove and inspect gas cap. Must be SRR furnished cap with nipple soldered in and minimum of 6” of gas hose safety wired on.
- Remove carburetor, #397135 & #555129 only, (and restrictor in come cases) and inspect as follows:
    - Restrictor must be unaltered. .575" (gold), .500" (turquoise or red) .425" (purple

or blue).

- Inspect for one or two intake gaskets. No paint or sealer allowed (except for tech paint). Two gaskets must be used with restrictor, one on each side.
- Inspect swirl if installed for position, then remove and inspect for alterations.
- Tech carb bore for .691" max bore size. Check carb bore for alterations. Air horn to be checked with 1.011" NO-GO.
- Knock out back carb plug out of air horn, using .696" NO-GO must not touch butterfly at full throttle.
- Remove butterfly and inspect for cast in #8, (this is the only legal butterfly, as #6, 10 & 11's are illegal), throttle shaft, inspect butterfly, screw, felt washer or rubber O-ring. Inspect throttle shaft, .093" minimum. No machining allowed. Stop arm may be altered.
- Inspect choke assembly, if installed.
- Remove and inspect needle assembly and jet.
- Tech idle hole - .028" NO-GO.
- Tech high speed hole - .062" NO-GO.
- Inspect short pickup tube for screen. (Remove and inspect for steel winding if necessary).
- Remove diaphragm cover; inspect cover, diaphragm, spring, and cup. No resurfacing of diaphragm cover.
- Inspect long pickup tube for screen. No one piece brass tube allowed.
- Inspect carb body for cast in #5. All other (i.e., #2 or #4 markings) are illegal. Inspect carb body for alterations, extra holes or passages. Aftermarket device to reinforce a broken ear on carb to tank mounting is permitted.
- Carburetors are to be stock, not blueprinted. Even though dimensions/specs are given, they are not intended as a green light to blueprint the carburetor. These are tolerances and dimensions that at times may come from Briggs & Stratton. No machining of carburetor bore allowed. If swirl marks cannot be seen, the carb is illegal. The carburetor will be checked against a known stock carburetor.

- Remove and inspect valve cover breather. (Disassemble if necessary) 1 or 2 gaskets allowed.
- Remove and inspect head bolts. (Head bolts must be stock). Any combination of lengths.
- Tech head gasket for .043" minimum thickness at three points 1" apart. Must be stock Briggs & Stratton gasket #272157 or #555066 or #555187 or #555236. FelPro Gasket #FR1004 is legal in 2007.
- Tech the three areas on cylinder head. .025", .408", and .305" minimum. For Super Stock these dimensions are .011", .408" and .300" minimum. This check will be done on the metal surfaces. Competitor will be allowed to scrape carbon for tech inspection purposes, no metal removal allowed.
- Check cylinder deck height, piston .005" out of hole maximum with .043" stock Briggs head gasket, or .015" out of hole with metal .058" gasket.
- No tech on cylinder bore diameter. No circular or machined grooving of cylinder allowed. No angle boring allowed. Standard bore Briggs piston must be used in Box Stock. Super Stock max oversize is +.035" Briggs & Stratton Motorsports piston. In 2006 +.035" over

bore will be allowed in Box Stock Classes.

- Tech stroke 2.437" +/- .010".
- Remove intake valve - tech for 30° face and 1.115" minimum diameter, and inspect for lightening, modifications, polishing, re-facing, etc.
- Tech intake spring for 1.410" maximum length. Must be stock un-ground Briggs & Stratton spring.
- Inspect for stock Briggs & Stratton lower retainer.
- Tech intake valve seat for factory installation, 30° angle, single angle, and 1.004" I.D. NO-GO, inspect port for modifications other than factory grind marks. (No grinding, blueprinting, glass beading, holes, or cracks). Pressure test if necessary.
- Remove exhaust valve, tech for 45° face, .990" minimum diameter, and inspect for lightening, modifications, polishing, re-facing, etc.
- Tech exhaust valve spring for 1.410" maximum length. Must be stock un-ground Briggs & Stratton spring.
- Inspect for stock Briggs & Stratton lower retainer.
- Tech exhaust valve seat for factory installation, 45° angle, one angle, .880" I.D. NO-GO, and inspect exhaust port for modifications, no glass beading, grinding, etc.
- Inspect for stock valve guides.
- Tech coil for proper resistance. 2,000 OHMS minimum to 5,000 OHMS maximum. Remove coil and inspect for alterations. Plug boot is allowed.
- Set up degree wheel, pointer, dial indicator, and prepare to profile cam.

Cam Profile

Intake	Exhaust
.020 -- 18-13 BTDC	.020 -- 51-46 BBDC
.050 -- 7 BT-0 TDC	.050 -- 38-33 BBDC
.100 -- 10-17 ATDC	.100 -- 21-16 BBDC
.150 -- 29-36 ATDC	.150 -- 2BB-3 ABDC
.200 -- 55-64 ATDC	.200 -- 21-31 ABDC
MAX LIFT -- 0.231"	MAX LIFT -- 0.231"
.200 -- 43-33 BBDC	.200 -- 76-65 BTDC
.150 -- 13-6 BBDC	.150 -- 48-40 BTDC
.100 -- 6-13 ABDC	.100 -- 28-21 BTDC
.050 -- 23-31 ABDC	.050 -- 10-4 BTDC
.020 -- 40-45 ABDC	.020 -- 2-7 ATDC

E-Z spin start 45-60 ABDC.

E-Z spin lift .013" minimum, .019" maximum with .001" maximum travel during the 40° duration time. At no time can the E-Z spin or its .001" travel go below .013" or above .019".

E-Z spin duration 40° minimum.

NOTE: All cam profile readings must be taken with zero valve lash. When checking cam profile, rotate engine in direction of rotation only. (Valves should have no clearance and no spring tension when checked).

- Remove and inspect flywheel for alterations - no painting, coating, broken fins, grinding, machining, glass beading, sandblasting. Minimum flywheel weight is 6 lbs. 4 oz.
- Remove side cover and inspect for no more than three crankcase gaskets, ball bearing installed shield inward and stock camshaft alignment. If removable crankshaft gear, inspect for proper installation.
- Remove and inspect rod bolts. Must be stock Briggs & Stratton.
- Inspect oil dipper for approval.
- Remove piston-rod assembly from cylinder.
- Check piston rings for installation.
    - Top ring must have bevel up.
    - Scraper ring with groove down.
    - No three-piece rings allowed.
- Rings without bevel may be installed either way.
- Remove piston rings and tech for sizes. Old style .115” minimum width top two rings, .095” minimum width oil ring, .093” groove minimum. Raptor III rings .090” minimum width top two rings & .058” +/- .005” thickness. Oil ring .070” minimum width & .100” +/- .005” thickness.
- Remove wrist pin, inspect for stock circlips, and separate from rod. Old style .290” inside maximum and .490” maximum outside diameter. Raptor III .281” inside maximum diameter and .490” maximum outside diameter and length @ 1.732” +/- .005”.
- Tech piston, minimum length 1.869". Minimum from top of piston to top of wrist pin .937", and inspect for alterations. On Raptor III pistons only, top of piston to top of wrist pin .937”, and minimum piston length is 1.671”. Top two ring land width .0603” - .0612”. Oil ring land width .1020” - .1032”.
- Tech rod length, 3.1233" minimum length and 3.1333” maximum. Oil hole is .177" NO-GO, inspect remained for alterations. No .020" undersize rods allowed. If old style rod used, stock sheet metal dipper must be used.
- Remove crankshaft from block and inspect for alterations, lightening, balancing, polishing, or reworking. If removable crank gear, inspect for unaltered square key. Minimum crankshaft journal .990".
- Remove camshaft and inspect for alterations. Surface must remain flat and original width. Stock Briggs cam only; will be subject to visual inspection. No ground cams.
- Remove and inspect lifters for alterations, reworking. No extended or adjustable lifters. Head of lifter .985" minimum, 1.005" maximum.
- Inspect block for alterations or reworking. Intake and exhaust ports must be in stock untouched condition. See intake port change for Super Stock class listed below. Effective 5-10-06.

ENGINE RULES - BOX STOCK AND SUPER STOCK

Special Notes

- Engine Models #135232, #135230, and #130232 are the ***only*** engines approved for competition.
    - Mandatory engine spec numbers:
    - 1536 or 1541 - 1991 Models
    - 5101 or 5102 - 1992 Models
    - 5111 or 5112 - 1993 Models
    - 1011 or 1012 - 1994 Models
    - 7004 - 1995 & 1996 Models
    - 7014 - 1996 & 1998 Models
    - 7124 – 1999, 2000, & 2001 & 2002 Models
- Any machining or modifications not listed in this tech manual can and will be considered illegal.
- Aftermarket crankcase breathers are ***not legal*** in any class. Aftermarket items that positively affix crankcase overflow hose to breather assembly are acceptable, as long as they do not modify stock Briggs breather assembly and its operation.
- Shotpeening, or glass beading not allowed on block or any engine part in all classes.
- Legal in all classes; bungee strap may be used around gas tank and engine to prevent the loosening of parts from vibration. Tank supports and carb saver type devices also legal and encouraged.
- Engine will be teched the day it is raced. All portions of the engine will be subject to tech at the end of the race day. In the case of broken parts, every attempt will be made to tech said parts; if this is not possible, it will be the decision of the tech officials to determine if the part broken would facilitate a performance gain, and if the broken part did facilitate a performance gain, the engine would be declared illegal. Cracked or broken parts during the course of the race may be replaced at the discretion of the tech official, providing no performance gain was rendered by the affected part.
- Air filter adapters are subject to tech at any time during the event. These adapters should be marked as with other parts of the engine after each heat.
- Where dial calipers are used to measure parts, a micrometer should be used when possible prior to rendering a part illegal. The preceding items are to put consistency and fairness in tech procedures.
- All competitors are responsible for the legality of their motor(s). All specifications are implemented for factory tolerances.
- Remote carburetor adjusters are legal.
- Any competitor refusing to participate in a tech inspection will not be allowed to compete in any SRR Box Stock class for the next two weeks.

Air Filter

Any air cleaner installed in a safe manner. No additional holes are allowed to be drilled or tapped. No filter may act as an air ram. Adapter may have rolled edge not to exceed .250" radius from top. Adapter may not be run without an air filter. Adapter may be flat on top, or have raised edge around the outside diameter. Above check on air ram and .250" radius is critical part of this tech.

Muffler

Robertson Torque Tubes part number AR-MC is the only legal header. The dimensions of this header as listed below shall constitute a legal header. The length of the smallest diameter of the header, measured on the outside of the radius shall be approximately 15". The inside diameter of the header shall be measured using snap gauges and a micrometer. The minimum diameter of the small stage is .900". The minimum inside diameter of the second stage is 1.125". The minimum inside diameter of the last or largest stage is 1.240".

An RLV silencer must be used (model RLV-91 w/1 5/16" diameter). Silencer must be stock as shipped with all baffles installed. Silencer baffle holes are .1285" maximum all baffles.

New in 2001 all headers must be fastened with drilled and safety wired bolts.

Governor

Governor assembly must be removed in its entirety.

Engine Covers

Engine covers must remain stock and intact on motor.

Belt/Chain Guards

Are allowed and mandatory.

Oil Catch Can

Oil overflows are mandatory in all classes. Tubing must run from crankcase valve breather to approved catch can. No tube allowed from catch can to carb. Overflow system subject to tech.

Oil Catch can must be vented to atmosphere.

Recoil/Starter

Either style may be used (cup or ratchet). One or the other must be used; no electric starters.

Bolts

Any bolt used to secure "sheet metal", with the exception of sheet metal held down by head bolts, can be replaced with larger diameter ones.

Any other replacement bolt except rod bolts and head bolts to be permitted as long as original diameter is used.

Any stock head bolts may be used - must have eight.

Gas Tank

Tank cup ***must*** be in stock location. Briggs tank insert #555220 may be used in fuel cup, but must be installed so that a pressurized fuel system doesn't result. Brace on tank bracket is permitted.

SRR vented gas cap must be used. Domed cap, as modified by SRR, and stock gasket as supplied by Briggs & Stratton must be used. Hose must be tied or banded to the air cleaner.

Welding

No welding can be done to an engine.

Gaskets

Any aftermarket gaskets permitted so long as same size and similar material (except

head gasket must be stock Briggs & Stratton #272157, #555066, #555187, and #555236 or metal with .015 pop up). One or two gaskets permitted on intake and on carb to tank. All gaskets will be teched against known stock Briggs & Stratton gaskets. No sealer or paint allowed.

Crankcase Gaskets

Aftermarket gaskets approved, must be made of same gasket material as stock. Maximum of three.

Head Gasket

Head gasket .043" minimum thickness to be checked in three places 1" apart. Stock Briggs part or FelPro #FR1004 at .043" minimum thickness.

Cylinder Head

Stock 5 HP head as shipped from factory.

No machining of gasket surface permitted. Three planes of head interior are subject to check by depth gauge to establish their proximity to gasket area surface. The three plane depths are .025", .408", .305". No machining to top of head. Removal of carbon buildup will be allowed for tech inspection purposes. This will be supervised by the tech inspector to insure that no metal is removed. No polishing of head allowed.

Starting in 2001 the Super Stock class will use the WKA tech on the cylinder head. The dimensions are .011" in the flat area above the piston, .408" in the spark plug area, and .300" in the are above the valves.

Cylinder Block

Block must be as produced, with no alterations or reworking. Block may not be machined on intake or exhaust ports gasket surface or on head gasket surface.

Cylinder Bore

2.5625" is stock bore. Bore diameter will not be teched. A stock non-over sized Briggs piston must be used in Junior I, Junior II and Senior Box Stock. Beginning in 2001 both Junior and Senior Super Stock may run a +.010" piston. In 2004 max piston size is +.035" stock Briggs & Stratton piston. In 2006 both Box Stock and Super Stock classes may use a +.035" stock Briggs & Stratton piston. This is done to help keep the old aluminum or 'cool bore' engines in use. No circular or machined grooving of cylinder allowed in any position of cylinder. Angle boring not permitted.

Stroke

2.437" (+/- .010") for wear is stock stroke. Minimum crank journal diameter is .990". To check stroke, push piston down to take up play of rod clearance. Check stroke from BDC to TDC.

Deck to Piston Clearance

This dimension cannot exceed .015" above block (see corresponding head gasket rule listed above). Machining of deck surface is not permitted. When measuring piston pop-up, it should be done with bar stock on a parallel with the piston wrist pin in center of piston.

Crankshaft

Stock factory crankshaft per engine model. Lightening, polishing of counterweights, addition of material is not permitted. PTO bearing must be stock as supplied from factory and installed in original position. Offset cranks are illegal. No hardening (except for stock Raptor crank).

Connecting Rod

Stock connecting rod only. No under sizes or resizing of undersize rods allowed. New type Briggs & Stratton connecting rod legal with oil hole in back rather than on side of rod. Oil hole on old and new rod will be .177" NO-GO. Old type may be drilled to spec. Minimum stock rod length is 3.1233", and maximum is 3.1333, measured from the bottom of the wrist pin to top of crank journal. Briggs rod with built in dipper is legal, part #555207.

Dippers

Stock Briggs dipper is mandatory in the Box Stock classes. Super Stock may use any aftermarket dipper. New #555207 rod with built in dipper is legal - Briggs & Stratton.

Piston - Pin - Rings

Old style stock unaltered Briggs & Stratton piston with minimum measurement of .937" from top of piston to top of wrist pin. Minimum piston length is 1.869". Pinhole may not be altered or relocated. Deck above top ring may not be altered. No machining allowed on piston. Pin must not be altered and maximum I.D. of pin is .290", maximum OD is .490". Raptor III piston has a .937” minimum dimension from the top of the piston to the top of the wrist pin. Minimum piston length is 1.671”. The top two ring piston land width is .0603” - .0612”, and the oil ring land width is .1020” - .1032”.Stock Briggs & Stratton unaltered rings in stock location only. Only end gapping and deburring of rings allowed. No machining of rings allowed. Three rings required. Expanders under rings not permitted.

Ring dimensions:

Old style piston top and second ring - 2.390" minimum I.D., .115" minimum width for wear.

Old style oil ring - 2.420" minimum I.D., .095" minimum width for wear. Groove must be present on oil ring. Groove must measure .093" regardless of condition of ring.

Raptor III rings, .090” minimum width top two rings & .058” +/- .005” thickness. Oil ring .070” minimum width & .100” +/- .005” thickness.

Ends of ring must remain flat. Rings must fall on tech gauge without spreading or using force. No excessive end gap allowed. End gap with ring compressed cannot exceed .500".

Camshaft

Stock factory camshaft with alignment as shipped from factory. Visual tech on camshaft lobes "lifter surface", and lobes must remain flat and of original width. No ground cams allowed.

Lifters

No extended or adjustable lifters allowed. Head of lifter .985" minimum, 1.005" maximum. .985" ***minimum*** with -0.003" allowance for out-of-round. Lifter must measure .985" at some point.

Valves

Must be one angle only on valves and seats. Intake 30°, exhaust 45°. Intake valve minimum diameter 1.115" intake seat I.D. 1.004" NO-GO. Exhaust valve minimum diameter .990", exhaust seat I.D . . . 880" NO-GO. Stock valves only. Cannot be polished or lightened. No refacing of valves allowed. No replacing of valve seats allowed. Stock Briggs guides allowed in exhaust and intake. Any valve setting permitted.

Valve Seats

Must remain stock.

Valve Springs

Stock valve springs and stock keepers, or stock exhaust springs on both intake and exhaust allowed. Valve spring lengths - intake 1.240", exhaust 1.410" maximum, or both 1.410".

Exhaust spring must be on exhaust. Intake spring must be on intake. Springs must be unaltered as supplied from factory. No ground aftermarket springs allowed.

Maximum wire diameters - intake .087", exhaust .091", or both .091", and/or minimum wire size .088" both sides.

Upper Valve Spring Retainers

Must be Briggs Part #23184 and #555147.

Crankcase Valve Breather

Crankcase valve chamber stock breather #294178 or #555073 must be used with unaltered valve. Breather will be teched up to and including grommet. Two valve chamber gaskets allowed. Breather tube must be removed from carburetor; tube may or may not be used, and may be shortened. Aftermarket items that improve securing tube and stock grommet to breather will be allowed as long as they don't alter performance of the stock Briggs breather assembly.

Ports, Intake and Exhaust

No cutting or metal work allowed. Port must have .050" material below seat. Intake port subject to pressure check. Allen bolts allowed in carburetor and exhaust. Studs allowed in exhaust. Block may not be machined on intake or exhaust surfaces.

Addition to Intake Port rule for Super Stock Classes 5-10-06. Due to the last production run of Briggs Raptor engines in which Briggs cleaned up port shape and casting flash with a tool which produces different shape ports, this rule is being implemented. We will use the current WKA port rule as it reads, and listed below, from the 2006 tech manual. This comes from section 700 4-Cycle Engine Specifications and Regulations. Section 701.28 and 701.28.1 shall apply. This same section 701.28 shall not apply to the exhaust port for this SRR Super Stock Class Tech.

701.28 Ports: Porting allowed. Ports surfaces are non-visual tech item. No addition of material allowed. Block may no te machined or altered on intake or exhaust port 'gasket mating' surfaces. No grinding is allowed on underside of valve seat. No holes in poets allowed. If port is pin-punched, it may not be done in a manner to prevent entry of a No-Go into port area.

701.28.1 Intake port .880" No-Go.

Bushings

No bushings of any kind allowed with exception of bushings approved in this tech manual.

Flywheel

Stock 5 HP flywheel only. No addition or removal of material allowed. Stock flywheel key with Briggs & Stratton logo must be used. No offset keys allowed in Box Stock, only Super Stock. Paintings and coatings other than minimum factory over spray is not permitted. Chipped fins due to poor casting allowed. Completely broken fins are not allowed. Weight on flywheel is 6-lbs. 4 oz. minimum.

Ignition

No battery ignition allowed. Stock coil must be used in unaltered form. No aftermarket 'Red' coils allowed. No slotting of attaching holes or machining of attaching bolts

allowed. Resistance from plug wire must be 2,000-OHMS ***minimum*** and 3,200 OHMS ***maximum*** as run regardless of temperature factor. New composite ignition legal. There must be resistance from ground to plug wire. ***Spark plug connector must be factory type***. Rubber boot is allowed. Coil air vane must be installed. Coil must retard.

Carburetor

Only carburetor #397135 and #555129 may be used (the Chinese replacement carb that became available in 2006 is not legal).

These part number carburetors must have a casting #5, no other number allowed

Butterfly with cast in #8 is only one legal. #555111.

Jets must have stock recess on backside.

No flat back jets allowed.

No recessing of holes from backside.

No funneling of hole allowed.

No oblonging of hole allowed.

Diaphragm side cannot be used to create a pressure fuel feed.

No modification to throttle shaft, butterfly, screw, or any portion of the air passageway.

No drilling of holes anywhere in carburetor.

Diaphragm side of carburetor must be installed as supplied from factory. Diaphragm cover plate cannot be surfaced to insure seal. Silicon or other material may not be applied to diaphragm side of gaskets.

No long brass pickup tube allowed.

A tab to reinforce a broken bolt ear on the carburetor is permitted.

Choke stub subject to removal in tech.

Felt washer must be on carb under lever. New rubber O-ring allowed.

A washer or coin may be crimped or glued on mixture needle.

Rubber band or spring may be used to hold choke open.

Stop arm on throttle shaft is not a tech item. Arm may be bent, filed, or cut. ***Remainder of throttle shaft must be unaltered***. Minimum throttle shaft thickness is .093".

Carburetor linkage tech stops at the throttle shaft. Bellcrank and shaft link are non-tech.

Choke can be removed in its entirety. If left, it must remain stock and complete. Choke stub subject to removal in tech.

With choke plug removed: .691" NO-GO may not reach butterfly at full throttle.

Swirl optional. If installed, must be in stock position and must be unaltered. Subject to be removed during tech inspection.

Visual tech on carb bore. .691" maximum I.D. Remainder of carb will be teched against known stock carb. Air horn and all other parts of carb must remain stock. Air horn measurement 1.011" NO-GO.

Main metering hole must be under .062". Idle hole must be under .028"

Cam Profile

Intake	**Exhaust**
.020 -- 18-13 BTDC	.020 -- 51-46 BBDC

.050 -- 7 BT-0 TDC	.050 -- 38-33 BBDC
.100 -- 10-17 ATDC	.100 -- 21-16 BBDC
.150 -- 29-36 ATDC	.150 -- 2BB-3 ABDC
.200 -- 55-64 ATDC	.200 -- 21-31 ABDC
MAX LIFT -- 0.231"	MAX LIFT -- 0.231"
.200 -- 43-33 BBDC	.200 -- 76-65 BTDC
.150 -- 13-6 BBDC	.150 -- 48-40 BTDC
.100 -- 6-13 ABDC	.100 -- 28-21 BTDC
.050 -- 23-31 ABDC	.050 -- 10-4 BTDC
.020 -- 40-45 ABDC	.020 -- 2-7 ATDC

E-Z spin start 45-60 ABDC.

E-Z spin lift .013" minimum, .019" maximum with .001" maximum travel during the 40° duration time. At no time can the E-Z spin or its .001" travel go below .013" or above .019".

E-Z spin duration 40° minimum.

NOTE: All cam profile readings must be taken with zero valve lash.

When checking cam profile, rotate engine in direction of rotation only. (Valves should have no clearance and no spring tension when checked).

Camshaft Checking

Note: All cam profile readings must be taken with zero valve lash.

This procedure checks the intake, E-Z spin, exhaust, and lift on the cam.

Attach degree wheel, pointer, and dial indicator in normal manner.

Set the engine at Top Dead Center with dial indicator or piston stop. Set degree wheel at 0 TDC.

Set dial indicator on the valve to be checked with piston at TDC and no clearance in the valve. Be sure that engine is positioned on the compression stroke. Set dial indicator to 0. Engine to be checked with valve springs removed.

Rotate the engine in the direction it turns.

Cam profile readings must fall within the limits shown at each checkpoint.

Restrictor

In classes where a restrictor must be run it ***must*** be unaltered. Restrictor sizes are .575" gold, .500" turquoise and red, and .425" purple and blue. The restrictor must be placed between the carburetor and the block with one gasket on each side. Any modifications attempting to bypass the restrictor are illegal. No oblonging of bolt holes to achieve movement of restrictor hole.

Fuel

Gasoline only.

Fuel Tests

All Sugar River Raceway gas classes may be subject to a pre-race fuel pump around

Oil

Flammable and dangerous additives added to the oil are not permitted. Subject to chemical test and laboratory analysis.

All competitors' oil will be subject to a test done by one of the following listed oil sniffers:

Robinair #14970 (low range)

RIF Instruments #5500

Snap-On #ACT5600

Any competitor not passing an oil check will be disqualified. The tech man has the right to use additional tests to determine the legality of the oil.

Any competitor spilling oil on the track will be subject to suspension for the entire event.