



2016 Junior Sprint Rules

2016 Jr. Sprint Rules

All drivers, owners, and crew persons are responsible to follow all the Safety rules, and track rules of Delta Speedway. Any person violating those rules will be subject to suspension, and expulsion from the facilities. This is at the sole discretion of Delta Speedway and its appointed officials.

Disclaimer: All rules may be changed/modified/adjusted as needed by Delta Speedway. Rules are designed and enforced to keep competition equal and safe.

Age: Drivers ages five (5) through twelve (12) (a driver whose thirteenth (13th) birthday falls during the racing season will be allowed to finish the season in which they began accruing points before their birthday) may compete in the Junior Sprint Class.

Roll Cage: Roll cages shall be at least one (1) inch .083 wall thickness mild steel, or one (1) inch .065 wall thickness chromoly steel minimum. The front section of the cage shall be no further back than the steering wheel. Roll cage shall have sufficient fore and aft bracing and strength to support the weight of the car and driver in case of an upset. Cage shall have gussets at the intersecting bars to the uprights. Bends must have at least three (3) inch radius. No square or pointed corners allowed. Roll cage must be a minimum of three (3) inches above the drivers helmet the top of the cage at any point above the driver's helmet. It is mandatory to install a cross brace behind the seat to support the shoulder harness at a point not lower than one and a half (1½) inches below or above the top of the drivers shoulders.

Bumpers and Nerfs: Car must have bumper extending beyond the front and rear tires. Nothing may extend beyond a tangent line from the outside edge of the tires to the bumpers. Nothing may extend beyond the outside edge or the tires or wheels, whichever is the widest. No sharp corners or design as to hook or damage. All cars must be equipped with nerf bars. Nerf bars must extend to inside edge of tires, but not beyond the outside of tire.

Safety: Seat belts must be securely attached to the car and used at all times. Metal to metal latches only. Five (5) point seat belts, shoulder harness and sub strap are required. Belt dates must not be over three (3) years old. (Example: Oct 2012 may be used in 2013, 2014 and 2015.) Arm restraints are mandatory and must be adequately adjusted to keep the drivers hands below the top of the roll cage. Helmets must be full head coverage competition type and one (1) of the two (2) latest SNELL approvals. Nomex head socks recommended. All drivers will wear a name brand flame-retardant uniform. Neck braces and/or cage nets with a SFI 3.2-1 rating or higher or Total Head containment seats are mandatory. SFI gloves are mandatory for safety.

Cockpit Controls: On and off switches must be on dash, top of the cowl or on steering wheel. On/off switch must be functional. Absolutely NO crew-to-driver radio communication. Cockpit controls: carb adjusters, kill switch, starter button and engine monitor. No wing sliders or pan hard adjusters driver operated in cockpits.

Battery: All wet cell batteries mounted in the cockpit must be covered and vented outside the cockpit area.

Fuel: VP 110 Only.

Weight: Minimum car and driver weight: Four hundred (400) pounds.

Suspension: Aluminum or steel body shocks are legal. Coil or torsion bar is legal.

Wheelbase: Maximum fifty-two (52) inches. Minimum fifty (50) inches, center of front axle to center of rear axle. Rear axle to be steel or splined aluminum 1¼ inches minimum diameter.

Maximum Tread Width: Not to exceed fifty-five (55) inches outside of tire to outside of tire.

Steering: Front wheels must be connected by a solid or tubular tie rod. Rear-wheel drive only. All suspension bolts except wheel nuts must be secured by some type of locking device.

Brakes: Brakes will be of sufficient strength so as to slide the wheels while the car is in motion at any given time.

Tires And Wheels: Wheels to be eight (8) inches diameter steel or aluminum non-beadlock only. Spec right rear tire must be Hoosier "JS". Hoosier tires must be run on all four corners of the car. Tire grooving is allowed on all 4 corners. No softening is allowed.

Bodies: All cars must have complete bodies of Sprint Car design only. Tail sections must be in place for time trials and all races. There must be a metal firewall between driver and engine, made of twenty-four (24) gauge steel or .060 inch aluminum. Body of car must be made of aluminum, metal, fiberglass or high impact plastic. All cars must be painted an attractive color or colors. No rear view mirrors. The only part of the car allowed to be dismantled for driver to enter or exit is a quick release steering wheel hub. All mechanically operated devices must be mounted below the driver's shoulders for safety. All fuel tanks must be equipped with a one-way check valve designed to prevent the spillage of fuel from the fuel tank vent in the event of a rollover.

Transmission: The drive will be by engine or jackshaft mounted clutches. No axle mounted clutches allowed. No direct drive will be allowed. Chain guards will be made of .090 inch thick aluminum or equivalent and will run on top of chain from the front of the front sprocket to the center of the rear axle. Driver must not be able to touch the chain or sprockets while sitting in the cockpit.

Wings: Right side board, maximum 42 inches x 20 inches. Left side board, maximum 42 inches x 20 inches. Minimum size is six (6) square feet. The wing cannot be mounted outside the centerline of the tires. Side boards may not extend more than three (3) inches beyond center section and sides must cover center section. All wings must have 1/16 inch radius edges or edging. No raw edges. No wood except for ribs or spars inside center section. Lower front corner of the wings sides cannot be more than four (4) inches below top of roll cage. Nose wings cannot exceed 24 inches x 18 inches, and must carry car number. Top wings are mandatory to enter a night's event. Cars may finish without a wing if no replacement is available.

Numbers: All cars must have legible numbers painted in contrasting colors on both sides of car and the nose.

Ballast: Any material used for ballast must be firmly attached as a part of the car's structure. No liquid or loose ballast such as water, fuel, oil, sand bags, rocks, log chains etc. allowed.

Hubs: Front hubs: Go kart type with 5/8 inch bearings and 5/16 inch wheel studs minimum. Rear hubs: Douglas 5 x 130 Go kart type or equivalent.

Engine Rules: Briggs & Stratton World Formula engines as defined by the KSUSA engine and FIA Homologation specs. Engine may or may not be sealed but both versions must pass Tech as defined by the previously mentioned rules upon request of a Track Official. The Briggs World Formula will use a RLV 5442S header or stock pipe and RLV 4100 silencer as defined in the KSUSA Briggs World Formula rules. Stock pipes may be cut and turned as necessary to fit the race car as long as the pipe still retains the original length, diameters, and volume as the original stock pipe.

Exhaust: All cars must have a muffler mounted on the header. See General Rules (3.38)

General Rules: Please read the General Rules & Regulations. All drivers and crew are responsible for knowing and following these rules.

Penalties: See General Rules (7.02) for Illegal Fuel Penalties and (9.04) for Engine Violation Penalties.

Protest Rules: Please reference the Protest Rules (9.02) under General Rules & Regulations. All drivers and crew are responsible for knowing and following these rules.

KSUSA/Delta Speedway Briggs World Formula Rules 2011

Please read these rules carefully as some rules vary slightly from the KSUSA rules.



Briggs & Stratton World Formula Engine Rules

All parts must be B&S factory production parts unless otherwise noted in these rules. No machining, polishing or alteration of any parts is permitted unless specifically noted in these rules. All parts are subject to comparison with a known stock part.

Shrouds and Covers: All shrouds and covers must be run as supplied. Cylinder shield may be bent slightly or drilled around spark plug hole to allow fitting cylinder head temperature lead and clearance for coil ground lead. Flywheel cover, top cover and plate are non tech items. They are replaced by part number 555699.

Header and Silencer: Factory header or RLV part number 5442S. Any exhaust gasket or no exhaust gasket allowed. Sealer allowed on header. Header nuts are not required to be safety wired. Bottom bracing must be bolted to head. Factory header may be cut and turned to fit car as long as the overall length and tube size remains the same as the stock factory header: OAL 20.5" OD .9375" x .065 wall (ID .807 +/- .005) Coating the pipe is allowed. Exhaust gas temp sensor is optional. RLV silencer part number 4100 required. If inside baffles on muffler are loose and rattle or have been altered or removed, the muffler will be deemed illegal. Coating is allowed. Springs attaching silencer to header must be safety wired.

Electric Starter: Starter motor must be operational and capable of starting engine. Battery must be minimum of eight (8) AH rating and capable of starting warm engine. Recoil starter and flywheel starter cone optional. Starter support bracket part number 557119 is optional.

Air Filter: Air filter must be Green brand 40 X 75 filter or K&N air filter # RC-0870 attached directly to carburetor. No extensions or adapters. Pace chassis may run an approved elbow for clearance purposes only.

Spark Plug: Any commercially available, ten (10) mm thread, spark plug allowed. Spark plug must be stock. Indexing washers allowed. Removal of factory sealing washer is not allowed unless using head temp sensor ring.

Fuel Pump: Fuel pump must be B&S part number 557033. Must be pulsed from intake manifold only.

Clutch: Clutch may be engine and/or jackshaft mounted. May use number 219 or number 35 sprockets.

Rev Limiter: Rev limit is 7100 rpm +/- 50 rpm. Rev limiter may be checked at any point in the race program. Rev limit will be checked with a suitable memory capable tachometer attached to the plug lead and the motor accelerated until the rev limiter begins to function. All rev limiters must function within 100 rpm when checked with the same instrument. Each competitor is allowed one courtesy check of the rev limiter with the instrument to be used at the event.

Oil: Any crankcase oil is allowed (no performance enhancing agents).

Carburetor: Stock Walbro PZ carburetor only. No alterations allowed; choke excluded. Carb mount boot B&S part number 557130 is required. Slide must remain unaltered. Unaltered stock needle marked CDB is required.

Choke Assembly: Choke assembly is optional and may be removed and shaft holes plugged with silicon. If choke is retained, choke lever may be fastened open with spring, rubber band or tie wrap.

Pilot Jets: 36, 38, 40 are allowed. No drilling of jets allowed.

Main Jets: 90, 93, 96, 98, 100, 102 are allowed. No drilling of jets allowed. Venturi measurement 717.10.6.1: Vertical .9902" max 717.10.6.2: Horizontal .7382" max

Camshaft: No alteration of the camshaft by machining, polishing, or altering is allowed. Must compare to stock B&S part. First camshaft check will be taken at the valve spring retainers. With the lash set at zero (0), the movement of the valve spring retainer may not exceed .3085". Any camshaft with a measurement at the push rod of less than .306 should be removed and measured on the grind and checked for alteration. Camshaft must be as supplied with Stock Profile and compression relief. Install degree wheel, using positive stop method.

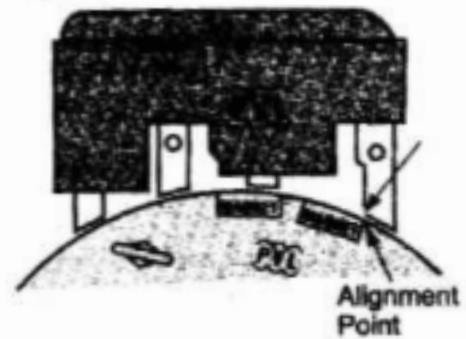
Check Ignition Timing: With the right edge of the magnet (not the magnet holder) aligned with the right edge of the notch on the bottom of the right leg of the coil as in Fig. 717.11.2. Check the PVL ignition as illustrated in 117.11.2.2. The degree wheel should indicate between twenty-three (23) and twenty-nine (29) degrees BTDC for either ignition.

See Figure 717.11.2.2 Below

Tech Camshaft at Pushrods: Push gently down on dial indicator stem to ensure that there is no lash when pushrods are going down.

Exhaust Lobe	Lift Intake Lobe
75-71 BBDC	.020 34-30 BTDC
57-53 BBDC	.050 18-14 BTDC
39-35 BBDC	.100 2BTDC-2ATDC
25-21 BBDC	.150 13-17 ATDC
9-5 BBDC	.200 29-33 ATDC
12-16 ABDC	.250 49-53 ATDC
25-29 ABDC	.275 63-67 ATDC
.3085 MAX	.3085
70-66 BTDC	.275 31-28 BBDC
57-53 BTDC	.250 18-14 BBDC
37-33 BTDC	.200 2-6 ABDC
21-17 BTDC	.150 18-22 ABDC
6-2 BTDC	.100 33-37 ABDC
11-15 ATDC	.050 49-53 ABDC
29-33 ATDC	.020 66-70 ABDC

Figure 717.11.2.2 PVL Coil Diagram



Deck/Piston Clearance: Machining of deck surface is permitted. There will be no knife edge finishes allowed, smooth finish only. Piston pop up cannot exceed .035" above block surface in the center of the piston. When measuring piston pop up, use the backside of the Sox pushrod gauge or set flat bar stock across piston parallel to wrist pin. Use dial indicator to check pop up on center of this bar. Carbon may be removed from the top of the piston prior to measuring. Top of piston may be filed to relieve protrusions left by number stamp on top of piston.

Bore: Maximum bore 2.725". Factory oversize pistons allowed.

Stroke: Maximum stroke is 2.204". Push piston down to take up rod play.

Head Gasket: Stock B&S head gasket only. .041" minimum thickness between head bolt holes. Measurements are to be made with micrometer from inside of gasket. Fire-ring gasket part number 555698 is production item and legal.

Head: Head may not be altered in any way from factory specifications. Heat sink part number 555690 is allowed.

Rocker Arms: Must be as produced. Length must be 2.761" minimum to 2.291" maximum.

Rocker Ball: Must be stock. Diameter to be .590" - .610".

Cylinder Head Gasket: Cylinder head gasket surface may be machined. Depth from gasket surface to head surface between valves must be a minimum of .319". Measure by using a depth micrometer. There will be no knife edge finishes allowed, smooth finish only. No angle milling of the head.

Intake Port: No media blasting of any type allowed on intake port in/on the head or manifold. Must be as cast. Maximum diagonal measurement is 1.101". Maximum vertical measurement is 1.044".

Exhaust Port: No media blasting of any type allowed on exhaust port. Must be as cast. Maximum I.D. of shoulder in bottom of exhaust port is .854"

Valve Seats: One 45° angle only Intake valve seat diameter is .966" - .972". Exhaust valve seat diameter is .844" - .850".

Valves:

Intake valve head diameter is 1.055" - 1.065".

Exhaust valve head diameter is .935" - .945".

Valve stem diameter is .232" - .238".

Valve face must have one 45° sealing surface only.

Valve Springs: Dual valve springs as supplied by factory are required.

Inner spring wire diameter is .066" - .068".

Outer spring wire diameter is .112" - .114".

Valve Guides: Replacement of valve guides with B&S factory part number 555645 is allowed.

Ignition: Unaltered B&S stock coil part number 557040 with external limiter or part number 557125 with internal rpm limiter is mandatory. Attachment bolts or bolt holes may not be altered. Spark plug connector must be stock factory type. Rubber plug boot is allowed. There must be resistance from plug wire to ground on coil part number 557040. Resistance must be between 3000 ohms, minimum, to 6000 ohms, maximum. Coil resistance may be rechecked after a minimum of ten (10) minutes if correct reading is not attained upon first check. No spec available on part number 557125.

Coil air gap is non tech.

Flywheel: Only stock cast iron or cast aluminum Briggs part number 557126 flywheel is permitted. Starter ring gear and all cooling fins must be in place. No machining, glass beading, sandblasting, painting or coating of flywheel is allowed. Minimum flywheel weight with starter ring, cooling fins, and attachment bolts is four (4) pounds three (3) ounces. Chipped fins due to poor casting are legal. Completely broken off fins are not allowed. Stock flywheel key with B&S logo is required and will determine aluminum flywheel ignition timing. The flywheel key may be aluminum or steel. NO offset keys permitted. One or two stock crankcase gaskets are required.

Valve Lifters: Must be stock. No polishing allowed.

Lifter Heads: Lifter head diameter must be .969" - .972".

Connecting Rod: Stock B&S part numbers 557005 or 557117 rod only. Rod may not be altered or polished. Rod may be clearance providing that it is in stock configuration and finish, with no dimpling or media blasting. Rod ends must be concentric with crank journal and wrist pin with no chamfer or breaking of edges. Rod length, measured from bottom of wrist pin hole to top of crank journal hole, is 2.419" minimum to 2.429" maximum.

Oil Hole Opening: Oil hole opening is .185" no-go. Crank end of oil hole is chamfered.

Wrist Pin:

Maximum I.D. is .414".

O.D. is .624"-.626".

Minimum length is 1.901".

Piston Rings: Three rings mandatory. Top compression ring must have chamfer or O toward top of piston. Second scraper ring must be installed with inside chamfer down and O toward top of piston. Oil ring must be installed as from factory. No alteration of rings allowed except end gapping and lapping. Maximum ring gap of rings is .050. Rings must be self supported in the cylinder bore of the engine being inspected. Rings must remain flat. Rings must be in one piece when removed from block. Aftermarket rings are allowed if they meet the Specifications listed below: Minimum width of top two rings is .095". Thickness of top two rings is .059" - .064". Minimum width of oil ring is .065". Ring groove must be present. Expander must be installed. Thickness of oil ring is .098" - .102".

Piston: Stock "kidney bean" piston required. No alteration, polishing or machining allowed. Only piston skirts are coated and coating cannot be removed and skirts or any part of piston be polished. Factory finishes only. Minimum

from top of piston to top of wrist pin on circlip side is .658". Minimum piston length is 1.768". Factory oversize World Formula pistons are allowed.

Crankshaft: Stock B&S crankshaft casting part numbers 772 and 052 only allowed, all finishes being as factory supplied, with stock timing gear installed in stock location only. No alteration or polishing in any manner allowed. Offset crankshafts not permitted. Stock bearings required. Shim(s) if used, must be installed as from factory. Crankshaft journal diameter is 1.094" - 1.100".

Block: Must be stock with no alterations, except blocks may be repaired from broken rod damage, providing that repair does not constitute a functional modification of original block. No welding is permitted from the cooling fins upward.

CYB rule: Unless the rules say you can; you can't!!!

All Tolerances +/- .001 measured with dial indicators, micrometers or calipers due to calibration variance.

Cam Profile:

Cam ID	Description	Max valve lift (inches) Int / Exh	Exhaust Profile ID	Exhaust Centerline (Crank Deg)	Exhaust Opens (BBDC)	Exhaust Closes (BTDC)	Exhaust Duration (Crank Deg)	Intake Profile ID	Intake Centerline (Crank Deg)	Intake Opens (BTDC)	Intake Closes (ABDC)	Intake Duration (Crk Deg)	Centerline Spread (Crank Deg)	Valve Overlap	Comments
Formula 215754 cam Spec	308 with ramps	.308 / .308		249	59	-17	256		467	21	55	55	256	38	Valve data at 1.0 mm (.0394 inches)
Formula 215754 cam Spec	308 with ramps	.308 / .308		249	59	-13	248		467	17	51	248	218	30	Valve data at .050 inch (1.27 mm)

The above specifications are with zero lash.