



# 2016

## NHKA Racing Series / F1 Outdoors Club Series

# World Formula Spec Engine Program

### 2016 Updates:

**Silencer:** The RLV-4108 silencer is no longer allowed. The RLV-4110 is now the only approved silencer, and already used by 99.9% of our racers.

**Fuel:** 93 octane fuel is still required, but there is now the option to run pump gas or race fuel. While race fuel offers no on-track advantage, but has no additives or ethanol so it burns cleaner and isn't as prone to clogging carburetor jets.

*Note: With respect, appreciation and full credit to the hard work of other racers, these rules are based upon the IKF Quarter Midget Rules. Some elements are adapted from a number of other sources while other elements are based upon our experience meeting the needs of our local racers. We invite any karting organization to adopt and modify these rules freely in the spirit of growing the sport.*

## Overall Program Description

**Rules Primer:** The ultimate goal of this spec/inspect/seal program is to grow the class and the series by providing fair, affordable, competitive, fun racing for beginners and experts. The World Formula engine package is designed to be fast, low maintenance and reliable in its box-stock configuration. The intent of these rules is to preserve that proven design and ensure all engines are built with stock parts to stock specifications to make winning about driving.

We have made every effort to eliminate all gray areas. Unless the rules say you can – you can't! If you are reading these rules looking for loopholes – stop. You are breaking the first rule:

**Deliberate and Active Compliance:** Competitors are expected to be deliberate and active in complying with these rules. An unintentional violation may still be considered a violation when effort to adhere to the rule is not clearly evident. For example: A racer has a part that is not in direct violation of a spec but for whatever reason is not in clear conformance. He chooses to run that part rather than a new stock part, and it gets flagged in post-race tech. While the legality of the part might be in question, that question is answered by the fact that the driver deliberately chose not to run a clearly legal new part, and is now subject to disqualification.

**Program Engine Builders:** Two engine builders have been selected to provide engine work, inspections and sealing:

**CPG Motorsports**

Dale Gross  
63 River Street  
Middleton, MA 01949  
<http://www.cpgmotorsports.com>  
(978) 815-0237

**New England Kart Center (NEKC)**

Aaron and Kyle Roof  
431 Atherton Hill Road  
Spofford, NH 03462  
<http://www.nekart.net>  
(603) 762-1519

**Engine Seals:** Seals are optional but encouraged to save the time, inconvenience and potential expense of repeat post-race inspections. Only CPG, NEKC or a designated race official can install seals. Engines will not be sealed at the track. New engines will include a seal when purchased from Apex Kart Sports, CFMotorsports, CRG America or Prospeed Kartsports. Seals are also included with rebuilds performed by CPG and NEKC.

**Inspections:** All unsealed engines that finish in the top five are subject to full post-race technical inspection. Sealed engines in the top five will only be subject to inspection of tech items outside the seal. Racers outside the top five may also be selected for inspection. At any time a racer may voluntarily submit their engine to CPG or NEKC for inspection and sealing.

**Penalties:** In most cases, racers found in violation of these rules at any time during an event, are disqualified for that event. Before returning to competition they are expected to provide proof to the race director that the issue has been corrected.

**Serious Infractions:** All non-legal or modified parts are subject to confiscation by race officials. If a competitor chooses not to relinquish the parts, or declines the mandatory post-race inspection, the engine's serial number will be noted, and the driver will be excluded from competition at NHKA and F1 Outdoors for four events, and required to pass inspection before racing again.

**Classes:**

**World Formula Light:** 15+ years old, 360lbs min.

**World Formula Heavy:** 15+ years old, 390lbs min.

**Updates:** In response to observations and feedback, these rules may be updated at anytime to ensure fairness and the best possible racing experience. We will make every effort to enforce these rules and make updates in a timely and diplomatic fashion.

## **Components Outside the Seal – Information for Competitors**

**Unaltered Stock Parts Only:** Unless specifically noted in these specs, all engine parts must be Briggs & Stratton stock parts made for the World Formula package. Parts are listed in "Version [REV.B]" of Briggs and Stratton's "*Formula Racing Performance Catalog & Reference Guide*," available by [clicking here](#).

**Measurements:** Measurements are listed only as reference of Briggs & Stratton stock part manufacturing tolerances.

**No Alteration of Parts:** No modification or machining of parts to bring them to stated minimum/maximum manufacturer tolerances (or for any reason) unless specifically noted in these specs. Any part that shows evidence of alteration – even if within listed tolerances – will be grounds for disqualification.

**Inspection Method:** All parts are subject to comparison with a known stock part, and/or measured to confirm conformity to Briggs & Stratton manufacturing tolerances. Parts that these rules specifically allow to be altered are measured. Measurements are taken with dial indicators, micrometers and/or calipers; all tolerances +\-.001" due to calibration variance.

**Shrouds and Covers:** All shrouds and covers must be stock and mounted in the stock location. Cylinder shield may be slightly bent or drilled around spark plug hole to allow clearance for a head temperature lead and/or coil ground lead.

**Header:** Stock header only (part 557045). Any or no exhaust gasket is allowed. Sealer on header is allowed. Safety wiring of header nuts is optional. Bottom bracing must be bolted to head. Wrapping or coating the pipe is allowed. Welded repairs and addition of exhaust gas temperature sensor are allowed.

**Silencer:** RLV silencer 4110 is required. No loose, rattling, altered or removed baffles. External coating is allowed. Springs attaching silencer to header must be safety wired.

**Electric Starter:** Starter motor assembly (part 557068) must be stock and mounted in the stock location. Battery, wiring, button and hardware to make electric starter operational are optional and open. Starter support bracket is optional (part 557119). Pull start assembly must be present, complete and operational.

**Rev Limiter:** Stock PVL ignition coil with integrated rev limiter only (part 557125 “magneto armature”). Rev limit is 7100 rpm +/- 50 rpm.

**Inspection Method:** Rev limiter may be checked at any point during an event with a suitable memory-capable tachometer attached to the plug lead. Engine is accelerated on stand, measurement is taken at point of rev limiter engagement, that point of engagement must be within 100 rpm when re-checked with the same instrument. Each competitor is allowed one courtesy check of their rev limiter with the instrument to be used at that event.

**Spark Plug:** Any commercially available, 10 mm-thread spark plug is allowed. Indexing washers allowed. Removal of factory sealing washer is not allowed unless using head temp sensor ring.

**Fuel Pump:** Must be either Briggs part 808656 or Mikuni single outlet (Mikuni part 994483). Must be mounted in stock location and pulsed from intake manifold. Fuel filter optional and open.

**Air Filter:** Stock green air filter only (part 698973). Must be attached directly to carburetor; no extensions or adapters allowed. Non-air-channeling water-repellant cover is optional in wet conditions.

**Carburetor:** Stock Walbro PZ carburetor only (part 557006). No alterations of any kind allowed. Stock measurement of venturi: .979”-.984” vertical, .719”-.728” horizontal. Stock mounting boot is required (part 557130 “Carburetor Spacer”). Choke assembly must be present, complete and operational.

**Slide & Needle:** Unaltered stock slide and stock needle marked “CDB” only.

**Jets:** Jets and needle are the only parts that may be changed in carb. Jet selection limited to those available in kit 557012: Pilot jets 36, 38, 40; Main jets 90, 93, 96, 98, 100, 102. No drilling of jets allowed. Float height may be adjusted.

**Clutch:** Briggs specified Premier Titan (part 557023), Premier Stinger (part 555727), or Hilliard Flame clutches only. Must be engine mounted. No Jackshafts allowed. No alteration of drum or shoes allowed, except to flip for inboard or outboard mounting. Internal springs may be changed to adjust clutch engagement; only springs made for selected clutch by the clutch manufacture are allowed. Only #219 or #35 sprocket/chain are allowed. Gear ratio is open.

**Fuel:** 93 octane pump gas or race fuel, no additives or oils allowed.

**Oil:** Any crankcase oil is allowed but must pass the burn test and/or the Sniffer test. (TIFF Industries Sniffer is recommended.) No additives allowed.

**Inspection Method:** Fuel may be checked by any means as part of post-race tech. When done with a Digitron gas meter, the meter is zeroed in a sample of source gasoline, +/-5 points deviation from zero is allowed. Each competitor is allowed one courtesy check of fuel in their tank with the method to be used at the event.

**Tires and Wheels:** Competitors may choose from these tires only: **Bridgestone YLC & YLB, Hoosier R60A, Mojo D2 & D3, MG Yellow or Red, Vega White & Green.** 5" diameter wheels only. Rear tire width 7.10", front tire width 4.50" only. Slight variance in tire size between manufacturers is allowed.

**No Tire Softener or Prep:** Absolutely no tire softener or tire prep of any kind allowed. Anyone caught with any at an event will be immediately disqualified from that event.

**Inspection Method:** Tires may be checked at any point during an event with a durometer.

**Data Systems:** Data systems are open and optional. RPM, head temperature and exhaust temperature sensors only.