

## **SECTION 8 - GENERAL ENGINE RULES AND TECHNICAL PROCEDURES**

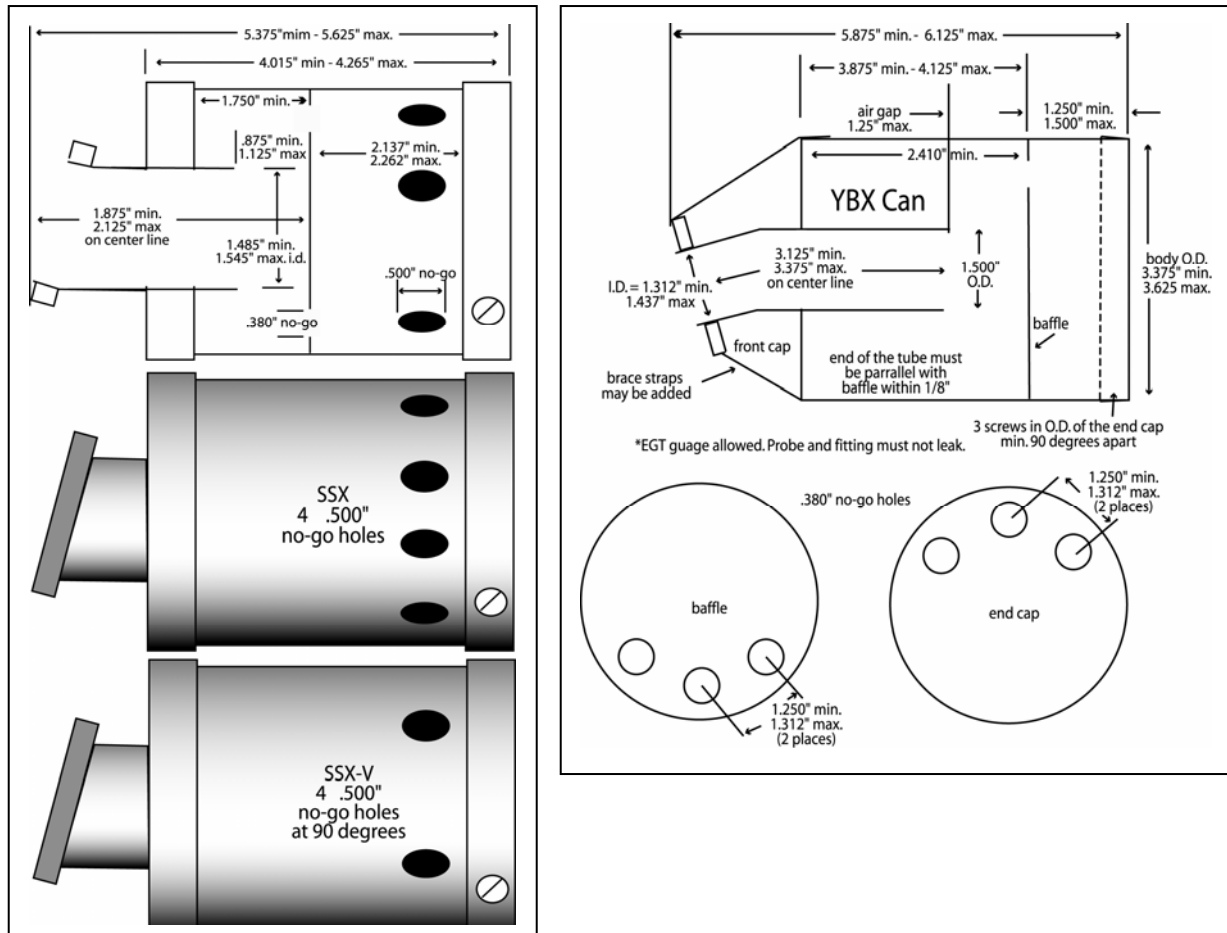
### **Governing Philosophy of the Burriss National Speedway Series Technical Regulations**

The rules set forth are designed to be a guide for technical inspectors to insure fair competition within the Burriss National Speedway Series. While the BNSS encourages innovation and engineering within its technical guidelines, certain modifications deemed to be against the spirit and intent of rules set forth shall be declared illegal. It is the sole discretion of the technical inspector and race director to decide if any modification outside of the rules laid down here will be deemed illegal for competition. Any means of introducing air to the engine, except from the inlet of the carburetor is illegal. Any means of modifying the engine or exhaust system to introduce air or bleed of exhaust gasses is illegal.

- 8.1 Gasoline General Rules - All 2 and 4 cycle engine classes designated "Gasoline only" will use commercially available roadside "pump" gasoline with a maximum of 93 octane. For major events or where a spec fuel is desired the hosting track should specify where the source fuel is to be obtained. This can be fuel supplied at the track or a nearby service station. All 2 cycle classes to use Burriss Castor and/or Blend with 6 oz/gal being the nominal oil to fuel ratio.
  - 8.1.1 2 Cycle Gas Tech -The tech inspector will draw one gallon of fuel from the source of race spec fuel. The inspector will add 6 ounces of Burriss Castor to the fuel sample. The sample will be kept in a shaded, cool location, under the control of the tech inspector. A Digitron meter must be set to 000 using the controlled sample. BNSS recommends zeroing the meter with spec fuel as opposed to using the cyclohexane method due to the potential for error due to reagent contamination and other environmental factors. Use of a single oil brand allows greater accuracy in the test results.
  - 8.1.2 4 Cycle Gas Tech - The tech inspector will draw one gallon of fuel from the source of the race spec fuel. The sample will be kept in a shaded, cool location, under the control of the tech inspector. A Digitron meter must be set to 000 using the controlled sample. BNSS recommends zeroing the meter with spec fuel as opposed to using the cyclohexane method due to the potential for error due to reagent contamination and other environmental factors.
  - 8.1.3 Competitors are allowed plus or minus 10 on the meter and are eligible for one re-check following a failed test.
- 8.2 Methanol Test General Rules-100% methanol with no additives or oil is the only fuel allowed in Methanol specified classes.
  - 8.2.1 For major events or where a spec fuel is desired the hosting track should specify where the source fuel is to be obtained. This can be fuel supplied at the track by the promoter or an approved vendor. Comparison testing can be done with a hydrometer or by the water test described below.
  - 8.2.2 Methanol water test. Using a clean glass bottle, fill with less than half of the bottle's volume with methanol. Fill with the same amount of distilled water. Mix thoroughly and let set for five minutes. If the test sample shows cloudiness, milkiness or contains precipitates, the participant's fuel is illegal.
  - 8.2.3 A pump-around fuel distribution system is a satisfactory replacement for a hydrometer test or the water test.
- 8.3 4 Cycle Exhaust Systems: The exhaust system must be of a fixed design and cannot be adjusted while the kart is in motion. (i.e. no slippy pipes) Length is non tech. Loop pipes OK. System may consist of one to three pieces (header, connector tube and tail pipe) plus a silencer (if required). These components to be stainless or low carbon steel materials only. Exhaust pipe/header may not extend past rear bumper (including

silencer, where applicable) Studs allowed to attach the header to cylinder head. Sealer and gaskets non-tech. If a silencer is required the RLV Model B-91XL\* (Pt# 4104) is the only approved model. \* Also referred to as B-91

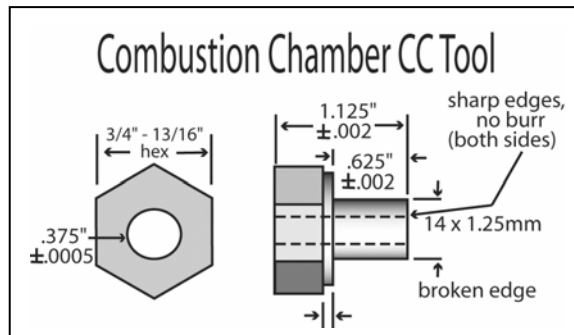
- 8.4 2 Cycle Exhaust Systems: The exhaust system must be of a fixed design and cannot be adjusted while the kart is in motion. (i.e. no sloppy pipes). The pipe must fit the factory dimensions and specifications. No modifications permitted. EGT probes and fittings are non-tech. Safety wire to secure the end piece of the system is non-tech. A loose exhaust can on a kart during a competitive event is cause for a black flag.



- 8.5 Combustion Chamber Volume Testing Procedure - Extreme care must be used to obtain accurate and reliable results.

- 8.5.1 Fill a 25cc (.1cc calibration) burette with Marvel Mystery Oil. Care must be taken to allow trapped air bubbles to escape. Flush the air from the stopcock and outlet.
- 8.5.2 Install the combustion chamber measuring plug and torque to 90 in. lbs. Roll the piston to approximately .100 before top dead center.
- 8.5.3 Fill the combustion chamber with the designated amount (24cc for F200, 11cc for KT100) of ATF from the burette.
- 8.5.4 Roll the piston up through top dead center. If any oil escapes the top of the combustion chamber plug, the engine is illegal.

\*Special note – It may be necessary to remove the engine from the kart so the “Combustion Chamber CC Tool” hole is in a vertical position. Also note if the camshaft has a compression release the exhaust rocker arm must be loosened to disable this feature.



8.6 Centrifugal clutches only in all classes. No direct drive.

8.7 Recommended Tech procedures for F200's.

8.7.1 “Level 1” tech would be a camshaft lift check, a combustion chamber cc check, and a carburetor venturi/throttle bore (and restrictor plate if required) check as well as an external engine check. This can be used at the club level and most weekly races.

8.7.2 “Level II” check would require the removal of the cylinder head to check bore and stroke and valve diameters and other related components in that area. This is a more involved procedure and can be used randomly as a deterrent or when infractions in that area are suspected.

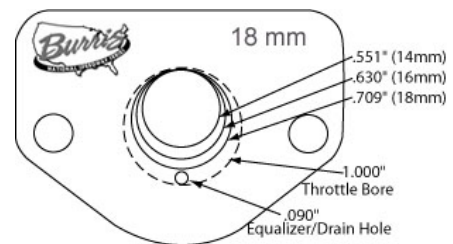
8.7.3 “Level III” tech would require removing the side cover to check the crankshaft, bearings, connecting rod and other components to confirm they conform to the rules and are of the proper material. This can be used as an extension or a more comprehensive tech to a Level II for the above reasons.

8.8 F200 Junior Restrictor Plate. Must be as supplied by the BNSS and no alterations are permitted. It is to be mounted between the intake manifold and carburetor. No Go diameter of the main restrictor hole and the .090” diameter equalizer/drain holes are +.001” from the dimension in parenthesis.

Junior I = 14mm (.551”) dia.

Junior II = 16mm (.630”) dia.

Junior III = 18mm (.709”) dia.



Note: F200 tech gages are available at [www.rixkartengines.com](http://www.rixkartengines.com) .

8.9 Briggs 5 hp Jr. Restrictor Plates. Flat style only with sharp edge. No bevelled or swaged holes. Maximum hole diameter is as follows; Purple = .425”, Turquoise = .500” and Gold = .575”.