

## Section Seven

### 600cc U6SA Engine Rules

#### 1) Terms and conditions

- a) If a change or modification to the stock engine or its parts is not included in these rules then the modification is considered legal.
- b) The word "stock" means un-modified factory original parts or components.
- c) No mixing engine parts from other motorcycle manufacturers. For example: Only Yamaha parts can be used in a Yamaha engine.  
The case determines the model year and that is what determines the stock bore & stroke for that engine.

#### 2) Overall Engine

- a) No limited production race motors allowed. Must be a production motorcycle engine, 4 cylinders 4 stroke.
- b) No titanium anywhere in or on the engine, unless it comes stock form manufacturer of engine on the production bike or used as bolts in aftermarket rods.
- c) Must have engine, clutch, and transmission all in one unit.
- d) Must be Chain Drive.

#### 3) Bore and stroke

- a) 600cc Maximum displacement for an engine model that was new in 2006 or newer. Older engines maximum displacement is 637cc. Engine model is defined as a manufacturer redesign of overall engine. See Specification list.
- b) No strokers or de-stroked engines.

#### 4) Head and cams

- a) NO PORTING or deporting of intake or exhaust runners.
- i) Valve jobs, valve grinding, valve seating, valve seal modification and valve seat cutting are allowed.
- ii) Valve seat inserts may be reworked or replaced with any seat of original dimensions. Any dimensional thickness of the stock inserts may not be increased. Valve seats can be ground with multiple angles. Blending of the valve seat into the head is permitted but cannot extend more than 1/4" into the aluminum head measured from where the seat meets the head.
- b) OEM Head only.
- c) Valves cannot be larger in diameter than factory stock valves.

#### 5) Bottom End

- a) No machining to remove weight from the crank (balancing of crank is ok) (no after-market cranks) (no lightweight cranks) No polishing or coatings of any kind.
- b) No aluminum connecting rods.
- c) No dry sump systems are allowed unless it comes from the motorcycle manufacturer as original equipment.

#### 6) Clutch/Transmission

- a) No removal of clutch.
- b) Clutch must remain operational.
- c) No modification to the stock transmission gears, no close-ratio gears or nonstandard gear-ratios. All gears must remain in transmission, no removing any gears. No polishing or coatings of any kind.

**7) Ignition**

- a) No aftermarket ECU's, stock appearing ECU only. ECU must be a production ECU that was originally supplied by the same manufacturer as the engine. Racing ECU's may be used, as long as they were originally supplied by the same manufacturer as the engine. Ex: Honda motorcycle engines must run ECU's that were supplied by Honda on their motorcycle engines. Re-flashing of ECU and factory race ECUs are allowed. Rev limit for all 600cc (nothing larger than 600cc) engines is 16,100 rpms. Rev limit for all 636cc engines is 14, 800 rpms. U6SA specified Rev Limit must remain intact at all times (no switched or gear specific limiters). If a computer is hooked up to check the ECU it must be set to U6SA specified rpm's, no tolerance. See specifications list for RPM limits.
- b) All cars must have the PA standard connector for the track to check engine rpm rev limit. These are available from the chassis manufactures and engine builders, and at the track. All cars must leave intact the rpm wire coming from the ECU.
- c) No gear position sensor may be used. The sensor may be in place on the engine, but cannot have any wires connected to it. Gear position wire from ECU may not be switchable.
- d) No traction control device.
- e) No more than one ECU box present in or on car.
- f) A 100 rpm over rev tolerance for the purpose of tech inspection is acceptable. (Note: this does not mean you can turn up the rpms in any ECU by any amount).
- g) Switchable wires for changing ignition maps, fuel maps, or rev limits must be contained and secured in the wiring harness. (the wires must be taped up, not visible, and unable to be switched in any way).
- h) Electric fuel pump safety relay must be installed on all cars equipped with an electric fuel pump, including lift pumps for Mechanical Fuel Injection systems. This relay must automatically shut off the electric fuel pump when the engine stops running.

**8) Air Induction system**

- a) No mechanically forced induction (turbo charging, supercharging).
- b) Any carburetors may be used on any engine, regardless of year of engine.
- i) Note: Switching to carburetors on engines that came with fuel injection usually increases the rev limiter due to the removal of the injectors as the ECU cuts fuel to limit rpm's before it cuts the ignition. A reflash of the ECU will be required if using carburetors in order to comply with the rev limit rule 7.
  - a)
  - c) If the engine did not come from the factory with fuel injection, fuel injection may not be used.

**9) Exhaust**

- a) A muffler must be used with the exhaust system that will keep noise levels within individual track limits.

**10) Charging system**

- a) No removing the charging system, it must remain in complete working order, no factory racing charging systems.

**11) Self-Starting**

- a) The engine must self-start at the beginning of the event. If it does not self-start, the car may be pushed off and must start at the rear of the event as the penalty.

**12) Fuel**

- a) No fuels other than alcohol, gasoline, and/or top lube. Nonflammable top lube only, no exotic fuel additives, no oxidizers, no fuel enhancer top lube.

- b) Fuel tanks must contain a bladder. A fuel tank with a bladder is further defined as a plastic outer shell with a rubber inner container.

**13) Minimum weight**

- a) Minimum weight at all times is 775 pounds wingless, car and driver. If weight is added it must be firmly bolted in place.