

## **Section XIII: Gas Scale Class**

**Revised March 31, 2023**

**Goal:** To establish a set of rules and specifications for gas power and racing formats that will allow scales to race and have fair competition.

- A.** The Gas Scale class is established as an additional class in R/CU.
- B.** The Gas Scale class shall follow the overall rules for R/CU, and the additional rules established in Section XIII. In case of conflict in rules between Section XIII and other sections, the Section XIII rules shall apply in the Gas Scale class.
- C.** The technical rules of the Gas Scale class will be reviewed on an annual basis by the R/CU Board. The technical rules review will take place after the yearly race season and before the end of the calendar year. The final decision on proposals will be issued no later than January 31<sup>st</sup> of the following calendar year. Technical proposals may be made to the Board at any time but will only be considered at the technical review meeting(s) during the above-specified time. Technical proposals may include modifications to the approved motor(s), or other specifications.
- D. Technical Rules**
  - 1. Hull Specifications**
    - a.** Refer to the R/C Unlimiteds general rule book.
    - b.** The belly pan is not to exceed 10.5" in length, 6.5" in width, and 1" in depth.
  - 2. Power**
    - a.** G or GX Class Engines from 15 to 30.99 cubic centimeters.
      - i. General Engine Specifications**
        - 1.** Engines in this class shall be highly mass-produced as evidenced by the process used to manufacture the major components. The cylinders and crankcases shall be die-castings, with cylinder and head as a one-piece unit. Examples of such engines are Zenoah, Chung Yang, Kawasaki, Homelite, and U.S. Engines.
        - 2.** Secondary parts such as water jackets, nose cones, drive components, shim plates, intake manifolds, carburetors, headers, pipes, etc. do not come under the "highly mass-produced" rule. Major components such as cranks, rods, pistons, cases, ignition systems, cylinders, and cylinder heads do fall under the rule and must be parts of the original motor manufacturer. Interchanging of major parts from one engine series to another is legal as long as the parts used were available on another engine from the same manufacturer.

3. Modifications are allowed to major and minor components. However, major components may only be modified by removing material. Adding material or parts to modify an engine's major components will be illegal. The only exception to this rule is that a cylinder may be modified to accept (add-on) a water jacket.
4. Induction systems must be piston-ported. Modifications incorporating induction systems other than piston-ported systems are illegal. Engines must be naturally aspirated. Tuned exhaust and intake systems are the only allowed method of altering cylinder pressures.
5. Engines in this class must employ spark-induced combustion. Glow plug or compression-induced combustion is illegal.
6. Displacement is the swept volume of the engine, which is the cross section area of the cylinder multiplied by the stroke of the engine and two displacement ranges will be offered within this class:
  - a. G-1 will include engines from 15 to 25.99 cubic centimeters.
  - b. G-2 will include engines from 26-30.99 cubic centimeters.

**ii. Fuel Specifications**

1. Gasoline having an octane rating no higher than 100 must be used in this class. Gasoline is a mixture of hydrocarbons with no nitrogen bearing compounds. Ethers or alcohols may be added commercially as oxygenating agents. It can be mixed with oil in any proportion for lubrication, but no other additives are allowed that were not in the fuel as originally manufactured.
2. To enforce this rule, a protest may be made to the contest director at any time during the contest. Protests must be accompanied by a \$10.00 protest fee that will be awarded to the sponsoring club. The offending racer will be made to use the protesting racer's fuel for the duration of the contest. If the fuel is unacceptable to the offending racer, fuel from a neutral party must then be used by both the offending racer and the protesting racer. In this situation, the neutral party would be awarded the protest fee in payment for the fuel.

**b. GX Class Rules**

**i. General Engine Specifications**

1. Engines running in this class will not be required to fall under the "industrial" rule. Displacement is the swept volume of the

engine, which is the cross section area of the cylinder multiplied by the stroke of the engine and two displacement ranges will be offered within this class:

- a. GX-1 will include engines from 15 to 25.99 cubic centimeters.
  - b. GX-2 will include engines from 15 to 30.99 cubic centimeters.
2. Engines in this class must employ spark-induced combustion. Glow plug or compression-induced combustion is illegal.
  3. Induction systems may include piston port induction, reed valve induction, rotor-valve induction, and drum valve induction.

**ii. Fuel Specifications**

1. Gasoline having an octane rating no higher than 117 must be used in this class. Gasoline is a mixture of hydrocarbons with no nitrogen bearing compounds. Ethers or alcohols may be added commercially as oxygenating agents. It can be mixed with oil in any proportion for lubrication, but no other additives are allowed that were not in the fuel as originally manufactured.
2. To enforce this rule, a protest may be made to the contest director at any time during the contest. Protests must be accompanied by a \$10.00 protest fee that will be awarded to the sponsoring club. The offending racer will be made to use the protesting racer's fuel for the duration of the contest. If the fuel is unacceptable to the offending racer, fuel from a neutral party must then be used by both the offending racer and the protesting racer. In this situation, the neutral party would be awarded the protest fee in payment for the fuel.

**iii. Exhaust**

1. Any exhaust manifold, header, and pipe may be used.

**iv. Drive Train**

1. Cable or hard shafts may be used.
2. Any type of shaft collet nut may be used, and/or geezer wheel may be used.
3. Gear boxes are prohibited.

**E. Heat Racing**

1. Heat draws for six or fewer boats entered in the race.
  - a. All boats will run in the same preliminary heats, plus the Final.

2. Heat draws for seven or more boats entered in the race.
  - a. Refer to the general R/CU Rulebook.

**F. Safety Rules**

1. Refer to the general R/CU Rulebook.
2. Gas Scale boats may only be started while on the bunk/stand containing prop guards. No “free-standing” starts or restarts anywhere.