1 Introduction

The ARCS glider contest is open to all types of radio control aircraft. The purpose of the contest is to develop and demonstrate skills around finding and exploiting lift. Each round of the contest starts with a limited duration launch window, followed by a timed glide, and ends with a spot landing attempt.

2 Contest Format

The contest groups pilots together by aircraft "class" (based on wingspan), and if diversity and quantity of entries warrants, by aircraft "type" (based on launch mechanism). Each group will fly at least 2 rounds. Scoring will be cumulative per group, with one throw-out round if 3 or more rounds are flown. For any given round, all pilots within a flight group must launch their planes within the timed launch window, so that they fly together in the same lift conditions.

There will be no single-entry groups.

The same aircraft will be flow for all rounds of a flight group, unless it is damaged, in which case an alternate may be used.

2.1 Pilot Meeting

Prior to the start of the contest, the CD will poll pilots to determine a reasonable launch window duration and gliding time based on aircraft classes and weather conditions. In good conditions the launch window lasts 3 minutes and the maximum gliding time lasts 10 minutes.

2.2 Launch Preparation

All pilots in a flight group's round select their landing circle and position themselves near it, with their aircraft prepared to launch. (Tanks full, batteries charged, high-start rigged, rocket motor loaded, etc.) Each pilot requires a timer to keep track of gliding time and optionally assist with locating lift and calling hazards such as full-scale aircraft passing nearby.

2.3 Launch Window Opens

An audible signal from the contest director (CD), typically a whistle, starts the clock on the launch window.

2.4 Launch Window

During the launch window all aircraft in a round must be launched into unpowered flight. Depending on the aircraft type, this may comprise stopping and starting an electric motor while searching for lift, releasing it from a high-start multiple times, or throwing it by hand repeatedly.

2.5 Launch Window Closes

An audible signal from the CD, typically a whistle, stops the clock on the launch window. At this time, all launch attempts and active propulsion must cease.

2.6 Gliding Time

Gliding time starts (or restarts) each time a pilot declares motor off, or the glider detaches from its launch mechanism, such as a high-start or a pilot's hand. Each start zeros out prior gliding time, so only the gliding time after the last motor run or launch attempt counts.

During gliding time, 1 point is awarded per second aloft, up to the maximum time – i.e. 300 points for 5 minutes or 600 points for 10 minutes. After the maximum time has been reached, 1 point is deducted per additional second aloft.

Gliding time stops when the aircraft comes to a complete stop on the ground or grounded structure (tree, roof, etc), and no further launch attempts are made (for instance, because the launch window has closed).

If the aircraft is still aloft 1 minute after working time, no landing points will be awarded.

2.7 Landing Points

Each pilot in a flight group has their own landing circle. A pilot may not stand within a landing circle during landing. Hand catching your aircraft, landing in another pilot's circle, shedding parts, or coming to rest inverted will result in loss of landing points for that flight.

Each landing circle will be marked by a 25 foot graduated tape, staked at the center of the circle. The tape will be graduated in 5 foot increments. 100 points will be added to the flight score if the model comes to rest within a 5 feet of the stake, 80 points if within 10 feet, and so on down to 20 points within 25 feet. Measurements for the landing bonus are from tip of nose, not prop blades or any other part of the aircraft.

3 Classes

Aircraft classes are based on wingspan. Note that a smaller wingspan aircraft may always fly in a larger class.

3.1 Class A

Wingspan less than or equal to 1.5 meters. Typically HLG and DLG.

3.2 Class B

Wingspan less than or equal to 2 meters. This includes 72 inch wingspan gliders.

3.3 Class C / Standard

Wingspan less than or equal to 100 inches (2.5M is 98.4").

3.4 Class D / Open

Any wingspan!

4 Type-Specific Rules

The following type-specific rules are intended to create a level playing field amongst multiple types of aircraft. The fundamental idea is that multiple launch attempts are allowed within the launch window, but only the last attempt counts. For example, an electric glider pilot can run his motor as many times as desired within the launch window, and a discus launch pilot can try throwing his glider multiple times in the same window. In both cases, the gliding time clock restarts after each launch attempt.

4.1 Powered Gliders

Powered gliders may use any type of onboard propulsion system including but not limited to rubber motors, compressed-gas motors, electric motors, internal combustion engines, and rocket motors. Multiple motors are allowed. Pop-pods are allowed so long as they do not present a safety hazard.

The propulsion system may be started, throttled, stopped, and restarted throughout the launch window. Propulsion after the launch window is not permitted. Gliding time starts at zero every time the propulsion system is powered off, so that only the last gliding flight counts.

4.2 Tow/Carrier Launched Gliders

Gliders launched by tow and carrier planes must be released by the end of the launch phase and cannot subsequently use onboard propulsive power. Gliding time starts at release.

Tow/carrier planes can exercise full throttle control without penalty. Tow/carrier plane flight time and landing have no bearing on gliding time.

4.3 Standard Gliders

Standard unpowered gliders may be launched by any external means. Launch mechanisms include but are not limited to hand launch, discus launch, hand tow, hi-starts, zip-starts, and winches. The pilot is encouraged to use helpers to operate the launch system.

Standard gliders can be relaunched throughout the launch window. Launch attempts are not permitted after the launch phase. Only the gliding time after the last launch counts towards working time, which begins anew with each launch.

5 Disqualifications

5.1 Damage

A flight is disqualified if the aircraft incurs damage that makes it unflyable.

5.2 Collision

A flight is disqualified if the aircraft collides with someone other than the pilot or damages another pilot's property. Don't run into stuff that's not yours.

5.3 Launch Window Violation

A flight is disqualified if the aircraft begins gliding flight (motor run ends, released from high-start, thrown, etc.) after the launch window has closed.

6 Gear Exclusions

6.1 Variometers

Variometers that report lift or sink to the pilot in real time may not be active during competition flights. Variometers are allowed for practice flights and are useful training tools. Flight logging electronics are permitted and encouraged so long as they do not report information to the pilot during the competition flight.

6.2 Skegs

Models may not use skegs or other devices intended to stop forward motion.

6.3 Windmilling Props

Windmilling props are discouraged as they cannot be visually distinguished from powered flight, and act as a drag brake, but are allowed if they are a normal flight characteristic of the aircraft while gliding.