Control Line Competition Rules

SECTION G.9

CONTROL LINE ENDURANCE

G.9 CONTROL LINE ENDURANCE

9.1 Objective

The objective of Control Line Endurance is to fly a control line model airplane powered by internal combustion reciprocating engine(s) so that it remains in the air for the greatest period of time. There are two classes of Control Line Endurance - the "Sport" class and the "Open" class. The rules for each class are separate and independent.

9.2 Control Line Endurance - Sport Class

In the Sport class, certain technologies are prohibited, as set out in this subsection, in order to provide a class more conducive to multi-entry contest events, and to encourage greater participation in Endurance competition.

9.2.1 General.

No restrictions are placed on the design of control line endurance models except that they shall meet the specifications of these regulations.

9.2.2 Engines

Single and multi-engine planes are allowed, and compete in the same class. All engines shall be of the reciprocating internal combustion type. The total "deemed displacement" from all engines must be in the range from .149 to .201 cubic inches (inclusive). The deemed displacement of a two-stroke engine is its actual displacement (100%). The deemed displacement of a four-stroke engine is sixty percent (60%) of its actual piston displacement. For example, a single engine plane powered by a four-stroke engine may have that engine range in actual displacement from .248 to .335 cubic inches (inclusive). Jet assist, catapult or other launching devices are not permitted. In the case of multi-engine models, all engines must be running at the start of the flight and remain running until at least the last two minutes of the flight.

9.2.3 Control Mechanism

The length of the control line(s) measured from the centre point of the grip part of the control handle (device) to the fore and aft centre line of the model shall be at least **52’0” but not more than 70’**. **Control lines for this event shall be two (2) braided steel wire lines, each line being not less than .015 diameter.** The entire control mechanism from the handle to, and including the model, shall be strong enough to withstand **a pull test of 25 pounds.**

9.2.4 Type of Model

9.2.4.1 The model must be of the heavier-than-air type. No gases, as for example helium, shall be employed to aid in providing a lighter model.

9.2.4.2 The model must be equipped with a permanently affixed gear for takeoff and landing.

9.2.4.3 Fuel must be carried inside the fuselage(s), wing(s) or pod(s). "Fuel" means the liquid or gas that ignites inside the engine. Pod(s), if used, must be permanently affixed and remain attached to the model throughout the entire flight.

9.2.4.4 No radio-controlled equipment is allowed in the model.

9.2.4.5 The "builder of the model" rule shall not apply.

9.2.4.6 Control Line Endurance models are exempt from any muffler requirement and noise standard.

9.2.5 Number of Flights

Each contestant will be allowed **three attempts for completion of two official flights**. All official and unofficial flights described below are attempts.

9.2.6 Official Flight

Any attempt during which the model becomes airborne before three (3) complete laps have been completed, and flies for ten (10) full laps, shall be considered official.

9.2.7 Unofficial Flight

An unofficial flight occurs when the model fails to become airborne within the first three (3) full laps from the point of release. If the model becomes airborne but does not fly ten (10) full laps without touching the ground, this too is considered an unofficial flight. Bouncing of the model due to terrain shall not be considered within the meaning of this ruling.

The **Contest Director** or the **Designated Event Director** may, at his discretion, add further definitions because of local conditions, such as a time limit to start engines, so long as adequate notice is given all contestants before competition begins.

9.2.8 Fueling

Prior to fueling, the fuel system must be confirmed to be empty. **The maximum fuel permitted when the model is started is 4 U.S. fluid ounces (118.29 ml).** Fueling is to be performed or observed by the **Contest Director** or the **Designated Event Director**. The fuel is to be measured through the use of an accurate system by visual examination of the volume of fuel put into the tank(s) and fuel lines. All lubrication shall be contained in the fuel, and may not be recirculated. Only the smallest amount of "priming fuel" necessary to start the engine may be added to the exhaust port or air intake port of the engine(s).

9.2.9 Flight

The model shall take off from the ground or runway under its own power and without outside assistance. Only one pilot is permitted during the entire duration of a flight. The pilot must start and regulate the engine before the flight begins. After takeoff release, no engine adjustments are allowed. For example, not allowed are throttle, carburetor, compression, or mixture adjustments by any means. Assistance from another person is allowed only to hold and release the plane at the start of the flight. The pilot shall endeavour to maintain the average flight altitude above the height of his controlling hand, but failure to do so shall not disqualify the entry. Furthermore, during the flight if due to wind and weather conditions, or inadvertent pilot error, the model should touch the ground, **this action shall not terminate the flight provided that the model is able to continue to remain airborne and continue the flight.**

9.2.10 Timing

Timing will commence the instant the model is released and will continue thereafter until the model is unable to continue to fly and the wheels touch the ground. Two timers are required, equipped with suitable stopwatches. The official time will be the average of the two watches, to the nearest second. In the event one of the watches in use should fail during the timing, **the remaining watch timing shall be considered to be official.**

9.2.11 Acceptance of Records

Record attempts will be in accordance with M.A.A.C. Regulations except that a single contestant may make an attempt if prior sanction is requested and granted.

9.3 Control Line Endurance - Open Class

In the Open class, advanced technology is not specifically prohibited, expect as may be stated below in this subsection. Long flights and team entries are encouraged.

9.3.1 General.

No restrictions are placed on the design of control line endurance models except that they shall meet the specifications of these regulations.

9.3.1.1 When a single entrant competes, that entrant shall start and regulate the engine and fly the plane with assistance only to launch the plane.

9.3.1.2 Teams of up to four people are allowed to enter. Teams and single entrants compete in the same class.

9.3.2 Engines

Single and multi-engine planes are allowed, and compete in the same class. All engines shall be of the reciprocating internal combustion type. The total "deemed displacement" from all engines must be in the range from .15 to .36 cubic inches (inclusive). The deemed

displacement of a two-stroke engine is its actual displacement (100%). The deemed displacement of a four-stroke engine is sixty percent (60%) of its actual piston displacement. For example, a single engine plane powered by a four-stroke engine may have that engine range in actual displacement from .25 to .60 cubic inches (inclusive). Jet assist, catapult or other launching devices are not permitted. In the case of multi-engine models, all engines must be running at the start of the flight and remain running until at least the last two minutes of the flight.

9.3.3 Control Mechanism

The length of the control line(s) measured from the centre point of the grip part of the control handle (device) to the fore and aft centre line of the model shall be at least **52'0" but not more than 70'**. **Control lines for this event shall be two (2) braided steel wire lines, each line being not less than .015 diameter.** The entire control mechanism from the handle to, and including the model, shall be strong enough to withstand **a pull test equal to 10 times the model's gross weight including fuel.**

9.3.4 Type of Model

9.3.4.1 The model must be of the heavier-than-air type. No gases, as for example helium, shall be employed to aid in providing a lighter model.

9.3.4.2 The model must be equipped with a permanently affixed gear for takeoff and landing.

9.3.4.3 Fuel must be carried inside the fuselage(s), wing(s) or pod(s). "Fuel" means the liquid or gas that ignites inside the engine. Pod(s), if used, must be permanently affixed and remain attached to the model throughout the entire flight.

9.3.4.4 The model, with all equipment ready to fly, including fuel, shall not weigh more than 4 lb. (64 ounces). Care must be exercised to see that scales used for weighing are accurate. Scales certified as accurate by city or county officials or other competent authority, are recommended.

9.3.4.5 The "builder of the model" rule shall not apply.

9.3.4.6 Control Line Endurance models are exempt from any muffler requirement and noise standard.

9.3.5 Number of Flights

Each contestant will be allowed **three attempts for completion of two official flights**. All official and unofficial flights described below are attempts.

9.3.6 Official Flight

Any attempt during which the model becomes airborne before three (3) complete laps have been completed, and flies for ten (10) full laps, shall be considered official.

9.3.7 Unofficial Flight

An unofficial flight occurs when the model fails to become airborne within the first three (3) full laps from the point of release. If the model becomes airborne but does not fly ten (10) full laps without touching the ground, this too is considered an unofficial flight. Bouncing of the model due to terrain shall not be considered within the meaning of this ruling.

The **Contest Director** or the **Designated Event Director** may, at his discretion, add further definitions because of local conditions, such as a time limit to start engines, so long as adequate notice is given all contestants before competition begins.

9.3.8 Flight

The model shall take off from the ground or runway under its own power and without outside assistance.

For team entries, any member of the team may start and regulate the engine, and any member of the team may act as pilot flying the plane. The engine may continue to be regulated in flight by the single entrant or any member of the team, including the pilot. For team entries, a team member's role may change throughout the flight, allowing the passing of control, whether it be flying or engine regulation, from one member to another. A team member may leave or join the circle at any time during the flight.

The pilot shall endeavour to maintain the average flight altitude above the height of his controlling hand, but failure to do so shall not disqualify the entry. Furthermore, during the flight if due to wind and weather conditions, or inadvertent pilot error, the model should touch the ground, **this action shall not terminate the flight provided that the model is able to continue to remain airborne and continue the flight.**

9.3.9 Timing

Timing will commence the instant the model is released and will continue thereafter until the model is unable to continue to fly and the wheels touch the ground. Two timers are required, equipped with suitable stopwatches. The official time will be the average of the two watches, to the nearest second. In the event one of the watches in use should fail during the timing, **the remaining watch timing shall be considered to be official.**

9.3.10 Acceptance of Records

Record attempts will be in accordance with M.A.A.C. Regulations except that a single contestant may make an attempt if prior sanction is requested and granted.