



# **Control Line Competition Rules**

## **SECTION G - 3**

### **CONTROL LINE RACING UNIFIED RULES**

3.1 Applicability. All pertinent M.A.A.C. regulations (see sections titled Sanctioned Competition Records, Selection of Champions, and General), and the General Control Line Rules shall apply, except as specified below.

3.2 Objective. It is the purpose of the Control Line Racing events to fly models in direct competition in preliminary heat races leading to feature (final) races. Those with the best scores (times) in the preliminary heats advance to the feature races. The winners are those with the best scores in the feature races.

3.3 Model Specifications. Models flown in Control Line Racing competition shall meet all specifications listed herein and any additional requirements specified for the individual events.

3.3.1 Engine displacement shall be as per the chart for each event. Engine replacement for any reason is permissible, but not during a heat or the final race.

3.3.2 Unless modified for the individual event, no exhaust extensions are allowed.

Allowable exhaust lengths will be defined for each event. Model cowling, etc., not directly attached to the engine, must not affect static engine performance.

3.3.3 Models must have a fixed landing gear and must ROG (rise-off-ground ie. hand launching is not permitted).

3.3.4 Models shall be rigged for counter-clockwise flying.

3.3.5 There shall be no restrictions on “cheek cowl” construction in any racing event which requires a profile fuselage type construction.

3.3.6 Sharp engine spinners shall not be allowed in any racing event. Blunt spinners, rounded acorn nuts, or regular shaft nuts are permissible. Sharp spinners, such as those provided with some engines, must have the points filed off to be permissible.

3.3.7 CL Racing models are exempt from any muffler requirements and noise standards or limits contained in the General or CL General sections of this rule book or in any other document.

3.4 Fuel Specifications. Fuel for two – cycle glow plug engines of more than .051 cubic inch displacement shall contain no more than 10 percent Nitromethane , not less than 20 percent lubricant, and the rest shall be methanol. (Diesel engines may use diesel fuel.)

3.5 Model Safety Requirements.

3.5.1 Models must pass a general safety inspection prior to each heat or race and after any crash.

3.5.2 Each model shall be subjected to a pull test prior to each heat or race. Pull test loads shall be as per the chart for each individual event.

3.5.3 Line specifications shall be as per the chart for each event.

3.6 Entries.

3.6.1 The entry must be made in the name of the builder of the model. He must act as the pilot or the member of the pit crew who actually flips the propeller to start the engine whenever the model is officially flown.

3.6.2 All members of the builder’s crew, whether pilot or pit crew, must be M.A.A.C. members.

- 3.6.3 In the case of a team entry, M.A.A.C. Team Regulations apply. (See Sanctioned Competition section.)
- 3.6.4 There shall be no more than two people in the pit crew. These two people may be changed for each heat or race but may not change during a heat or race.
- 3.6.5 Pilots may be changed for each heat or race but not during a heat or race.
- 3.6.6 Each entry may have two planes. Both must have the same M.A.A.C. number, except in the case of a team entry. Models may not be changed during a heat or race. *Note: Although a contestant may have two planes available for use, only one entry is permitted per contestant in an event.*
- 3.7 Field Layout.
- 3.7.1 Starting from the centre, a circle of five-foot radius shall be laid out. This is called the “Pilot’s Circle”, and it is the outer limit of the area where the pilots actually fly the model.
- 3.7.2 A second circle of fifteen foot radius from the centre shall be laid out. This is called the “Pitting Circle”. Pilots must crouch just outside this circle at the start of the race during refueling stops and upon landing.
- 3.7.3 A third circle of the radius shown in each racing event shall be laid out. This is called the “Inner Circle”, and it is the innermost limit that the pit crew may enter without prior approval of the Event Director. The area inside the Inner Circle is called the “Racing Zone”.
- 3.7.4 A fourth circle of radius shown for each racing event shall be laid out. This is called the “Outer Circle”. It is the innermost limit for pitting operations. All pit stops must be performed outside this line. All pit crew and paraphernalia must remain outside the Outer Circle except when actually retrieving a model for a pit stop, or at the conclusion of a heat or race.
- 3.8 Field Safety Requirements.
- 3.8.1 Pilots must stay within the Pilot’s Circle and walk around in the circle while flying.
- 3.8.2 Pilots must move to the area between the Pilot's Circle and the Pitting Circle to land for refueling.
- 3.8.3 During a race, a non-flying pilot must assume a crouched position outside the Pitting Circle, and must stay out of the way of other pilots. Immediately following takeoff the pilot must resume his position in the Pilot’s Circle.
- 3.8.4 Pit crew shall service and refuel models outside the Outer Circle. They must keep all equipment and themselves outside the Outer Circle except during the initial takeoff, when they may move just to the inside of the Outer Circle. It is mandatory for pit-crew to wear safety helmets for all classes of control–line racing.
- 3.8.5 Pit crew must not at any time enter the Racing Zone without consent of the Event Director, and then they must enter at a right angle to the flight path.
- 3.9 RACES.
- 3.9.1 Preliminary qualifying heats shall determine the best flyers to be taken to the final races. The individual events specify the number and length of both the qualifying heats and final races. Pit stops, if required, must be made before the conclusion of the final lap of any heat or race. The Event Director, at his discretion, may conduct races varying from these procedures to accommodate smaller contests, etc., provided such variations are known to all contestants prior to the first heat in an event.
- 3.9.2 The engine must be completely stopped for refueling, and at least a token amount of fuel must be added. The pit stop is not to be considered complete until the model

travels one full lap from the point of release. If the model does not complete a full lap by flying, rolling, or both, the pit crew shall restart the model as a continuation of the same pit stop. In such a case, it would not be mandatory to add more fuel.

- 3.9.3 The number of flyers in each heat or race is defined for each individual event.
- 3.9.4 For those events having more than one qualifying heat, each heat will start immediately following the conclusion of the preceding heat (back to back).
- 3.9.5 A contestant must be notified at least one heat or race prior to the one in which he is to compete. It is the contestant's responsibility to be prepared at this time.
- 3.9.6 The contestants have three minutes to appear at the competition circle after they have been called to fly. The Event Director may, at his discretion allow more time, or disqualify contestants who are late.
- 3.9.7 There shall be a two-minute period to allow for engine warm-up and final safety checks.

### 3.10 Flying Regulations

- 3.10.1 Contestants shall be spaced at intervals around the circle. Exact positioning and selection of pit position shall be the responsibility of the Event Director. (The selection of pit position should take into consideration the wind direction and velocity, the number of flyers in the race, etc.)
- 3.10.2 A cold start system will be used. Engines will be started after the starting signal has been given. Engine starting devices shall not be allowed during any heat or race, but may be used during the pre-race warm-up. Each plane may be released as soon as its engine is running. If an engine is running when the starting signal is given, the pitman must stop and then restart the engine prior to releasing the aircraft. If it is released without first stopping and then restarting the engine, the contestant will be disqualified.
- 3.10.3 Flying heights will be specified for each individual event. All flying must be done between the specified heights except for passing. A three – lap penalty will be given for each violation. Repeated violators will be disqualified. The Event Director will make all decisions concerning violations.
- 3.10.4 Passing must be accomplished as quickly and as low as possible. Never should it exceed one-half lap. Excepting for the first half-lap after any takeoff, passing shall be done by flying over the model being passed. A three-lap penalty shall be given if a contestant passes for a longer time, or in a careless or dangerous manner.
- 3.10.5 The Event Director may, at his discretion call for a restart in the event of a collision. Furthermore, Event Directors are specifically expected to use sound judgment in rescheduling a contestant to re-fly a heat if he clearly had to shut down his engine in the interest of safety, or to avoid a collision. (As an example: if one pilot's plane crashes causing a line entanglement, and if the other pilot had to shut down his plane for the safety of all concerned, the Event Director may reschedule the latter pilot for another heat.)
- 3.10.6 It is the pit crew's / pilot's responsibility to keep the control lines on the ground during the start, a pit stop, or after completing a race. Should there be a failure to comply with this rule, and it leads to the snagging of a second aircraft which is taking off or landing, and if, in the Event Director's opinion, the snag affected the race results of the second aircraft, the entrant whose lines were snagged shall be disqualified, and the entrant who snagged his lines will have his race rescheduled for a later time. If, in the Event Director's opinion, the line snag was not due to negligence, and the snag affected either entrant's race results, either or both entrants may be rescheduled for a later race, and no disqualification need result.

- 3.10.7 In the event of an accident or entanglement bringing down all planes, a new heat or race shall be run. A contestant causing a deliberate collision shall be disqualified, and the heat or race be rerun.
- 3.10.8 3.10.8. A three-lap penalty shall be assessed on any entrant who is found whipping at any time other than the first lap following a takeoff.
- 3.10.9 If in the Event Director's opinion, a contestant deliberately conducts himself in a manner which (1) endangers other pilots or team members; (2) causes damage to other models; or (3) flagrantly disregards any of the aforementioned rules (whether acting as the pilot or pit-crew), such action shall result in disqualification of the team from the race.
- 3.10.10 Arguing with the Event Director will lead to disqualification.
- 3.11 Scoring.
- 3.11.1 Officials consist of an Event Director – Starting Judge and a lap counter and timer for each plane in the heat or race. One person may serve as both lap counter and timer. Stopwatches with graduations of  $1 / 10^{\text{th}}$  second or finer shall be used for timing. The watches and lap counting devices must be checked for accuracy and conditions before the heats.
- 3.11.2 The lap counter / timer for each contestant in a heat or race shall be positioned outside the Outer Circle adjacent to the original starting position of the aircraft. Each entrant shall have his lap counter / timer identified before the heat or race begins.
- 3.11.3 Each plane shall be timed from the starting signal until it has completed the required number of laps. Each plane in a heat or race must complete the required distance within five minutes after the first plane in the heat for its score to count. Any plane not covering the required distance in the time required shall receive no score for the heat.
- 3.11.4 In the event of a penalty, the lap counter / timer shall be notified before the pit crew by the Event Director. The Event Director shall then inform the pit crew as to the cause and the amount of penalty.
- 3.11.5 A contestant's qualifying score will be his single best time from the qualifying race(s).
- 3.11.6 Final scoring shall be determined by the time required to complete the main event Final Race. Two lap counters / timers are recommended for each plane in a final race. Finalists shall be chosen based on the score from the qualifying heats. Up to 12 finalists may be chosen to fly in the appropriate number of final races. The minimum number of finalists to be chosen should be that number which can fly in one heat as recommended for each event. The exact number to be chosen will be based on the number of contestants and announced prior to the first qualifying heat.
- 3.12 Records. To qualify for a national record, the timing must be carried out by two timekeepers using watches registering at least  $1 / 10^{\text{th}}$  of a second. The two recorded times must not exceed  $2 / 10^{\text{th}}$  of a second; the average of the two times will be used for record purposes. Supporting or verification flights are not required.
- 3.12.1 Records may be established for both heat and final races.
- 3.12.2 M.A.A.C. records for FAI Team Race shall be considered only when the flight has been made according to the FAI Sporting Code.
- 3.12.3 CL Racing records may be set only at a Major contest, or sanctioned Record Trial, and only if the record setting flight had competition during 80 percent of the claimed record performance.

G.3.13 CONTROL LINE RAT RACING:

Control Line Rat Racing		Required Min. Diameter Each Line – Single Strand		
Class Engine Size (cu. inch)	Max Model Weight	Min. Line Length	Single Strand 2 Lines	Pull Test
.1500 - .2135	4 lbs.	59'6" – 60'6"	.014	32G
.2136 - .3051	4 lbs.	59'6" – 60'6"	.016	32G
.3052 - .4028	4 lbs.	59'6" – 60'6"	.018	32G

3.13.1 Applicability. All rules from the Unified Control Line Racing rules apply to this event except as modified, appended, or specified here.

3.13.2 Model Specifications.

2.1 Junior contestants will be permitted to enter models of profile construction only. Refer to profile definition in the Control Line General section. This ruling applies to all Junior flown Rat Racers whether competing in Junior, Open or combined events.

2.2 If the model is of cast pan construction with two or more parts held together by screws or bolts, it must be, in the Event Director's opinion, as strong as the methods suggested in the CL Speed section.

2.3 Only constant diameter exhaust extensions are allowed. Such extensions shall be no more than 5–1/4 inches in length as measured along the centre line from the centre of the piston bore to the end of the pipe.

3.13.3 Races.

3.1 Each contestant shall be allowed two qualifying heats of 70 laps in length. One refueling stop is mandatory in each heat.

3.2 Final races shall be 140 laps in length with three mandatory fuel stops.

3.3 All races will be run with exactly two flyers. When an odd number of competitors are entered, the final three will be flown "round robin;" that is, flyer two and three in heat three. Note that each flyer gets his required pair of qualifying heats.

3.13.3 Flying Regulations.

4.1 All flying shall be done between six and twenty feet altitude.

3.13.4 Field Layout.

5.1 The Inner Circle shall be 68 – foot radius.

5.2 The Outer Circle shall be 76 – foot radius.

G.3.14 CONTROL LINE MOUSE RACING:

Class 1 Mouse

3.14.1 Applicability. All rules from the Unified Control Line Racing rules apply to this event except as modified, appended, or specified here.

3.14.2 Any currently produced reed valve engine with an integral tank. Spring – type starters that are mounted on the engine and carried by the engine in flight may be used. Models must have an exposed control system. There are no restrictions to the aircraft configuration, except that the aircraft must have fixed landing gear and must ROG (single wheel gear permissible).

3.14.3 Model Safety Requirements.

In order not to create an unwarranted hazard to contestants, the Contest Director may require that any, or all, contestants put up a qualifying flight to demonstrate adequate flight stability prior to being allowed to compete.

3.14.4 Races

- 4.1 Each contestant shall be allowed two qualifying heats of 50 laps in length. One refueling stop is mandatory in each heat.
- 4.2 Final race(s) shall be 100 laps with two mandatory refueling stops.
- 4.3 All races shall be run with at least two but not more than three flyers.

3.14.5 Flying Regulations.

5.1 All flying shall be done between six and twelve feet of altitude. Field Layout.

6.1. The Inner Circle shall be 48 – foot radius.

6.2. The Outer Circle shall be 58 – foot radius.

CL Mouse Racing			Required Min. Diameter Of each Line		
Engine Size (Cu. Inch)	Max. Model Weight	Required Line Length	Single Strand 2 Lines	Multi – Strand 2 Lines	Pull Test
.0504	4 lbs.	42’0” – 42’6”	.010”	.012”	7.5 lbs.

G.3.15 CONTROL LINE RACING:

Class “A”

Class “B”

3.15.1 Applicability. All rules from the Unified Control Line Racing rules apply to this event except as modified, appended, or specified here.

### 3.15.2 Model Specifications.

2.1 The airplane must be a model of an actual Goodyear Racer or Formula 1 racer and must be of the profile fuselage type. The engine must not be cowled in.

2.1.1 The maximum length of the exhaust system as measured along its centre line from the face of the piston shall be .95 inches.

2.2 The model must have a minimum consistent scale of 1 – 1 / 2 inches to the foot (1 / 8 scale). All scales must be within a plus or minus five percent for the top and side profiles (views) with the exception of the stabilizer area and the fuselage width.

2.2.1 The stab area may be increased up to 25 percent of wing area, but must maintain scale outline.

2.2.2 The landing gear must be of the same configuration as the actual aircraft, e.g., two separated struts, and must exit from the scale location, but it may be longer, shorter, swept forward or swept backward (wheel pants optional).

2.2.3 Cowls or “apple cheeks” as used on full – sized aircraft are recommended but not required.

2.2.4 The model must have a scale – like paint scheme, not necessarily the same colour, but representative of full scale racers.

2.2.5 The model must have racing numbers on the fuselage sides and the upper left – hand wing.

2.2.6 The contestant’s M.A.A.C. number should appear as part of the scale – like license number on the upper right – hand wing. It may be preceded by “C” or “CF” at the contestant’s option.

### 3.15.3 Races. CLASS A

3.1 Each contestant shall be allowed one qualifying heat of 70 laps in length. One refueling stop is mandatory in each heat. If time permits, two back – to – back 70 lap heats may be flown.

3.2 Final race(s) shall be 140 laps in length with three mandatory refueling stops.

3.3 All races shall be run with at least two but not more than three flyers.

### 3.15.4 Flying Regulations.

3.4 All flying shall be done between six and twenty feet of altitude.

### 3.15.5 Field Layout.

5.1 The Inner Circle shall be 68 – foot radius.

5.2 The Outer Circle shall be 76 – foot radius.

3.15.6 Class B. “B” Class models shall have engines consisting of stock parts with no modifications allowed to any component which will affect its performance over a stock engine. Engine types will be limited to plain bearing glow engines of any design, diesel engines of any design, and ball bearing glow engines without Schnuerle type porting.

3.15.7 The length of control lines measured from the centre line of the model to the centre of the handle shall be 52’6” plus or minus 6 inches. Minimum diameter shall be .012”.

3.15.8 Qualifying heats shall be 100 laps in length. One refueling stop is mandatory. Final race(s) shall be 200 laps in length with three mandatory refueling stops.



CL SCALE RACING				
Engine Size Cu. inch	Max. Model Weight	Required minimum diameter of each Line		
		Required Line Length	Single Strand	Pull Test
			Two Lines	
CLASS A .000 - .1525	4 lbs.	59'6" – 60'6"	.014	25 lbs.
CLASS B .000 - .1525	4 lbs.	52'0" – 53'0"	.012	25 lbs.

### G.3.16 LA.25 Sport Race Rules

3.16.1 Purpose: It is the intent that this event will provide the competitor with a racing event which is low in cost, and fun to fly while providing a good training ground for those who wish to move on to more advanced forms of racing.

3.16.2 All pertinent M.A.A.C. racing rules shall apply in regards to safety and conduct of the races, except as follows:

2.1 Engine. The only allowable engine shall be a commercially available and absolutely stock OS Max LA .25 engine, operating on suction feed. (No chromed liners, or modified piston/liners will be allowed, and only the standard LA.25 venturi can be used.)

The only allowable modification is the replacement of the plastic backplate with a metal OS or Thunder Tiger replacement

It is recommended that all engines be checked before racing commences, and afterwards at the Contest Director's discretion.

2.2 Aircraft. The model must be of profile fuselage type and have minimum fuselage length of 24 INCHES when measured from the face of the thrust washer to the leading edge of the moveable elevator.

2.3 Wing. The model must have a minimum wing area of 300 SQUARE INCHES and a minimum thickness of 1 INCH when measured at any point along the span with the exception of the last 5 INCHES before the wing tips.

2.4 The model must have a fixed landing gear with a minimum of one wheel not less than 2 INCHES in diameter.

2.5 The model may be equipped with a fuel shutoff system.

2.6 Fuel Tank. The fuel tank shall be fully external, mounted forward of the leading edge, and located on the outboard side of the fuselage. The tank may not be designed to cowl the engine. All vents are limited to 1 / 4 INCH outside diameter. The tank may not be pressurized but the vents may be directed into the airstream.

2.7 Propellers: Only stock black Master Airscrew 8 X 6 props will be allowed. (Only balancing and the removal of flash will be permitted.)

2.8 Fuel: Commercially available 10% Nitro Fuel will be used in official racing, and this will be supplied by the host club, at a nominal cost, in pre-designated containers. (The fueling of models will be monitored by the race officials during the race. Immediate disqualification will be the penalty for any team that substitutes the official race fuel for their own.)

2.9 Glow plugs: Any standard glow plug that fits ¼ X 28 NF threads will be permitted. (Modified threads, or clamps will not be allowed.)

3.16.3 Prohibited Equipment: Pressure re-fuellers, hot-glove electrical contact systems, and centrifugal carburetor switches are prohibited.

3.16.4 Pull Test: The plane and control system shall undergo a pull test of not less than 25 pounds.

3.16.5 Lines: The minimum line diameter shall be .015 INCHES, and be of stranded construction with a length of 60 Feet plus or minus 6 INCHES when measured from the inside edge of the control handle to the centre-line of the airplane. Mono-line systems are not allowed.

3.16.6 Races: Preliminary heats shall be of 70-lap duration, with one pit stop required. Two preliminary heats shall be flown with the best result to count. Finals shall be of 140 laps duration, with three pit-stops required. All races shall be run with at least two, but not more than three entrants.

6.1 The start of a race shall begin with a two-minute warm-up period. During this period, the engine can be started and run right up to the commencement of the race. (The engines need not be shut - off prior to the start of the race). The starting signal shall be by flag, whistle or other highly audible or visual means. Once the signal to start has been given, the models can be released by the mechanics.

6.2 In the event that a competitor's model completes the required number of laps in a race without completing the mandatory number of pit stops, he will then be timed until he completes the required pit - stop(s) and then flies one extra lap afterwards.

3.16.7 High Flying: The Contest Director may assess a penalty of two laps per infraction, and his penalty will be added to the length of a heat or final in which the penalty is awarded. Normal flying height will be between 10 and 25 FEET, except for passing.

3.16.8 Safety: All pitmen shall wear a hockey or motorcycle type helmet, which provides full coverage for the sides and rear of the head.

All pilots will fly without caps/hats to avoid the lines from catching on them. No water bottles will be allowed in the flying circle.

3.16.9 All models will be pitted 3 feet outside of the landing circle, and all pilots shall keep their handles flat on the ground during pit-stops to avoid snagging other landing models.

3.16.10 *The Event Director may, at his discretion, disqualify any entry that does not conform to the above rules and regulations. A competitor may also be disqualified for any flagrant or willful breach of the Control Line safety rules.*