RULES GOVERNING MODEL AVIATION COMPETITION IN THE UNITED STATES

Amendment Listing

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Control Line Racing Unified Rules

FOR EVENTS 311, 312, 313, 314, 315, 316, 317.

1. Applicability.

All pertinent AMA regulations (see sections titled Sanctioned Competition, Records, Selection of Champions, and General) and the General Control Line rules shall apply except as specified below.

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. Model Specifications.

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

3.1.

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

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.

Models must have a fixed landing gear and must ROG (hand launching is not permitted).

3.4.

Models shall be rigged for counterclock-wise flying.

3.5.

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

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.*

3.7.

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.

4. Fuel Specifications.

Fuel for two-cycle glow plug engines of more than .054 cubic inch displacement shall contain not more than 10 percent nitromethane, not less than 20 percent lubricant, and the rest shall be methanol. (Diesel engines may use diesel fuel.) ***This rule has been interpreted to mean that the contest management is to supply 10% Nitro/20% lube fuel for the events.***

5. Model Safety Requirements.

5.1.

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

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.

5.3.

Line specifications shall be as per the chart for each event. Refer to the control line general rules for control line materials and line construction.

6. Entries.

6.1.

The builder-of-the-model rule shall not apply to Control Line Racing events. The contestant named as the entrant must act as the pilot or member of the pit crew who actually flips the propeller to start the engine whenever the model is officially flown.

6.2.

All members of the entrant's crew, whether pilot or pit crew, must be AMA members.

6.3.

In the case of a team entry, AMA Team Regulations apply. (See Sanctioned Competition section.)

6.4.

There shall be no more than two (2) people in the pit crew. These two (2) people may be changed for each heat or race but may not change during a heat or race.

6.5.

Pilots may be changed for each heat or race but not during a heat or race.

6.6.

Each entry may have two (2) airplanes. Both must have the same AMA 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 (2) airplanes available for use, only one (1) entry is permitted per contestant in an event.

6.7.

A team comprising of two contestants (pilot and pitman) may process one airplane that will be used as a backup for either member of the team. If one member of the team uses this airplane in a race, it may not be used by the other. This backup plane must be processed with the primary aircraft and indicated to the processing official that it will serve as a "Team Backup".

7. Field Layout.

7.1.

Starting from the center, a circle of five (5) 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.

7.2.

A circle of 14-feet radius (9 feet, 10 inches for Mouse II) from the center point shall be laid out. This is called the "Pitting Circle." Pilots must

crouch just outside of this circle at the start of the race, during refueling stops, and after landing and the pit crew has retrieved the model.

7.2.1.

The pilot must remain inside the pitting circle at all times when his model is moving and not in the possession of the pit crew. Penalty for stepping out of the pitting circle is disqualification from the race.

7.3.

A third circle of 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 from the Contest Director. The area inside the Inner Circle is called the "Racing Zone.''

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 members 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.

7.5.

The "Outer Circle" will be divided into six (6) equal sixty (60) degree sectors. At the start of the race pitting will be performed at one of these pitting segments.

8. Field Requirements.

8.1.

Pilots must stay within the Pilot's Circle and walk around in the circle while flying.

8.2.

Pilots must move to the area between the Pilot's Circle and the Pitting Circle to land for refu-eling. During pitting or the initial start, the pilot must be crouched slightly outside the Pitting Circle. Immediately following takeoff the pilot must resume position in the Pilot's Circle.

8.3.

At the start or during the race, a non-flying pilot must crouch or bend over, keeping his handle and lines as close to the ground as defined by the Event Director.

Pilots will not leave the area of the "Pitting Circle"/"Racing Zone" without the Event Director's permission. When a contestant has completed his race or is unable to continue, he must sit or crouch just outside the Pitting Circle as long as the other competitors are still engaged in the race unless the contest director allows him to leave the circle earlier.

8.4.

Pit crew members shall service and refuel models outside the Outer Circle. They must keep all equipment and themselves just outside the Outer Circle

8.5.

Pit crew members must not, at any time, enter the Racing Zone without consent of the Contest Director, and then they must enter at a right angle to the flight path.

8.6.

All pitmen/pit crew must wear helmets. See the AMA Safety Code, General Section for approved helmet specifications.

9. Races.

9.1.

Preliminary qualifying heats shall determine the best fliers 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 Contest Director, at his or her 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 the event.

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 (1) 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.

9.3.

The number of fliers in each heat or race is defined for each individual event.

9.4.

A contestant must be notified at least one (1) 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.

9.5.

The contestants have three (3) minutes to appear at the competition circle after they have been called to fly. The Contest Director may, at his or her discretion, allow more time or disqualify contestants who are late.

9.6.

There shall be a two-minute period to allow for engine warm-up and final safety checks.

10. Flying Regulations.

10.1.

For the final races, the choice of "Pitting Areas" shall be in order according to the results of the heat races. The contestant with the fastest heat time chooses first, second fastest contestant chooses seconds, etc. In the case of a tie, the contestant second fastest heat time will decide the order of choice.

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 airplane 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 released without stopping and then restarting the engine, the contestant will be disqualified.

10.3.

All flying must be accomplished between six (6) and fifteen (15) feet above the ground, except when passing. Passing must be accomplished no

higher than twenty (20) feet above the ground and must take place within two (2) laps.

10.4.

Passing must be accomplished as quickly and as low as possible. Excluding the first half lap after any takeoff, passing shall be done by flying over the model being passed. The pilot being overtaken must not impede the pilot doing the overtaking and must leave space for the overtaking pilot when the pass has been completed.

10.5.

The Contest Director may, at his or her discretion, call for a restart in the event of a collision. Furthermore, although the authority is inherent,

Contest Directors are specifically expected to use sound judgment in rescheduling a contestant to re-fly a heat if the contestant clearly shut down his engine in the interest of safety. Thus, as an example, if one pilot's airplane crashes causing a line entanglement, and if the other pilot shut down his airplane for the safety of all concerned, the Contest Director may reschedule the latter pilot for another heat.

10.6.

It is the pit crew's/pilot's responsibility to keep the control lines on the ground during a start, pit stop, or after completing a race. Should failure to comply with this rule lead to the snagging of a second aircraft which is taking off or landing, and if, in the Contest 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 the lines will have his race rescheduled for a later time. If, in the Contest 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.

10.7.

The aircraft is allowed to fly a maximum of two (2) continuous laps without the engine running. The aircraft must touch the ground with the engine stopped before the pit crew is allowed to catch it.

11. Warning and Eliminations.

At each warning the Event Director shall notify the contestant. In the event of any serious breach of the rules, a contestant may be eliminated from the race.

11.1. Definitions.

Warnings should be given using short standard phrases whenever possible. The most common of these phases are listed in the flowing subsections. Verbal communications should be kept to a minimum to prevent contestant distractions.

11.1.1.

"Whipping" is the application of physical force to increase the speed of the aircraft. This occurs if the handle is in front of the center of rotation of the aircraft.

11.1.2.

"Blocking" is defined as obstructing another pilot either by body position or arm position, preventing the other pilot taking his correct piloting location, and thus slowing down his aircraft. This commonly occurs when a pilot is behind center or not able to keep up with his/her airplane in its rotation.

11.1.3.

"Behind Center" is defined as keeping the handle in the center of the circle with the pilot's body behind the center.

11.1.4.

"Pivoting" is defined as the pilot physically keeping his body in the center of the circle, forcing the other pilots to walk around him.

11.1.5.

"Pilot Interference" is defined as holding or pulling another pilot such that his/her normal activities may be impeded. Warnings should not be given when a pilot touches another pilot only to help his orientation.

11.2. Warnings.

Warnings should be communicated to the team quickly, however, all warnings are effective at the lap or race time the infringement occurs, not when communicated to the team. At the time a third warning against a team occurs that team will be penalized. The penalty will be a time equivalent to three timed laps and will be added to the contestant's race result. The three- lap time will be based on the average lap time calculated from the national final record of the same event, rounded to nearest whole second. The following is not a full or complete list of warnable offenses. At this discretion, the contest director, determines what constitutes a warning.

11.2.1.

If a pilot interferes with or obstructs another pilot, either by his conduct in the circle (ex; raising his handle above his head during take off), or by maneuvering his aircraft to prevent another aircraft from flying or landing normally.

("Pilot Interference")

11.2.2.

If a pilot, instead of walking around the center, stands in the same place, or walks backwards, or continuously keeps the center between himself and the aircraft. ("Pivoting and Behind Center")

11.2.3.

If a pilot applies physical effort to increases the speed of his model during the race.

("Whipping")

11.2.4.

If the height level specified in section 10.3, is exceeded except when landing or taking off.

11.2.5.

If during the start of the race or during the pit stops, the control handle, the lines and the model, are not as close to the ground as specified by the Event director, as defined in Section 10.6. ("Pilot Interference")

11.2.6.

If the pitman services the aircraft inside of the "Outer Circle"

11.2.7.

If the Pilot does not leave a space for an overtaking pilot after a pass has been completed. ("PilotInterference")

11.3. Disqualifications.

Most reasons for elimination are either a flagrant disregard for the other competitors or safety violations. Each disqualification is at the discretion of the event director. The following list does not comprise all reasons for a team to be disqualified.

11.3.1.

If a pilot steps outside the "Pitting Circle" before the pitman has control of the landing model, or the model has come to a complete stop.

11.3.2.

If the pitman steps into the "Inner Circle" without the permission of the Event Director.

11.3.3.

If a pass is done by passing under the slower aircraft, except for the first half lap after take off.

11.3.4.

If a pilot whose model is being overtaken impedes the overtaking pilot, in any way.

11.3.5.

If a member of a team or their model causes a deliberate collision.

11.3.6.

If the aircraft flies for more then two (2) continuous laps with its engine stopped.

11.3.7.

If the aircraft is recovered with the engine running, or prior to touch down with the engine stopped.

11.3.8.

If the contestant argues with the Event Director.

12. Scoring.

12.1.

Officials consist of a Contest Director, Starting Judge, and a lap counter and timer for each airplane in the heat or race. One person may serve as both lap counter and timer. Stopwatches with graduations of 1/10 second or finer shall be used for timing. The watches and lap counting devices must be checked for accuracy and condition before the heats.

12.2.

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.

12.3.

Each airplane shall be timed from the starting signal until it has completed the required number of laps. Each airplane in a heat or race must complete the required distance within five (5) minutes after the first airplane in the

heat for its score to count. Any airplane not covering the required distance in the time required shall receive no score for the heat.

12.4.

In the event of a penalty, the contest director shall inform the team as to the cause of the penalty.

12.5.

A contestant's qualifying score will be his single best time from the qualifying race(s).

12.6.

Final scoring shall be determined by the time required to complete the main event final race. Two (2) lap counters/timers are recommended for each airplane in a final race. Finalists will 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 (1) 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.

13. Records.

To qualify for a national record, the timing must be carried out by two (2) timekeepers using watches registering at least 1/10 of a second. A maximum tolerance of 5/10 of a second is allowed between watches; the average of the two (2) times will be used for record purposes. Supporting or verification flights are not required.

13.1.

Records may be established for both heat races and final races.

13.2.

AMA records for FAI Team Race shall be considered only when flight has been made according to the FAI Sporting Code.

13.3.

CL Racing records may be set only at AAAA or higher-rated-contests (which include the National Aeromodeling Championships (NATS), the team selection finals and Continental or World Championsips for FAI Team Race, and only if the record-setting flight (for other than F2C) had competition during 80 percent of the claimed record performance.

CONTROL LINE RAT RACING FOR EVENT 311.

CL Rat Racing								
Class/Engine Size (cubic inch)	Max. Model Weight	Minimum Line Length	Required Minimum Diameter of Each Line					Pull Test
			Single Strand			Multi-Strand		
			1 Line	2 Lines	3 Lines	2 Lines	3 Lines	
.0-.1525	4 lbs.	59'6"-60'6"	--------	.014"	--------	--------"	--------	35 lbs

1. Applicability.

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

2. Model Specifications.

2.1.

If the model is of cast plan construction (two (2) or more parts held together by crews or bolts), it must be, in the Contest Director's opinion, as strong as the methods suggested in the CL Speed section.

2.2.

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

3. Engine Specifications.

3.1.

Maximum engine size shall be .1525 cu. in.

4. Races.

4.1.

Each contestant shall be allowed two (2) qualifying heats of 70 laps in length. One (1) refueling stop is mandatory in each heat.

4.2.

Final races shall be 140 laps in length with three (3) mandatory refueling stops.

4.3.

All races will be run with exactly two (2) fliers. When an odd number of competitors are entered, the final three (3) will be flown "round robin;'' that is, flier one and flier two in heat one, flier one and flier three in heat two, flier two and flier three in heat three. Note that each flier gets his/her required pair of qualifying heats.

5. Flying Regulations.

5.1.

The Inner Circle shall be 68-foot radius.

5.2.

The Outer Circle shall be 76-foot radius.

CONTROL LINE SLOW RAT RACING FOR EVENT 312.

CL Slow Rat Racing								
Class/Engine Size (cubic inch)	Max. Model Weight	Minimum Line Length	Required Minimum Diameter of Each Line					Pull Test
			Single Strand			Multi-Strand		
			1 Line	2 Lines	3 Lines	2 Lines	3 Lines	
.0-.2599 (4.2cc)	2.5 lbs.	59'6"-60'6"	--------	.016	--------	.018	--------	35 lbs

1. Applicability.

All rules from the Unified Control

Line Racing rules apply to this event except as modified, appended, or specified here.

2. Model Specifications.

2.1.

The maximum length of the exhaust system as measured along its center line from the face of the piston shall be 1.1 inches.

2.2.

Pressure fuel systems are not allowed with the exception that the fuel tank vent tubes may be directed into the airstream. The engine must have a

fixed size (non-adjustable) choke area venture. Engines equipped with factory type RC throttles or carburetors must have the variable intake portion of the carburetor locked in position throughout the flight.

2.3.

Models must be of profile fuselage type, and must conform to the general profile definition.

The models must have a minimum fuselage length of 22 inches when measured from the propeller thrust washer face to the leading edge of the moveable elevator surface.

2.4.

The minimum wing area shall be 300 square inches. The wing must have a minimum thickness of one (1) inch when measured at any point along the span, with the exception of the last two (2) inches before each wing tip.

2.5.

All models must have a canopy, horizontal stabilizer, elevator and vertical fin.

2.6.

The entire fuel tank must be located ahead of the leading edge of the wing, with no surface or edge more than 1/8th inch inboard of the thrustline of the engine.

2.7.

Models must have a fixed landing gear with minimum of one (1) wheel, and must be capable of unassisted ROG takeoff. Hand launching is permitted only when it is the Contest Director's opinion that the flying site will not permit a safe ROG.

3. Races.

3.1.

Each contestant shall be allowed two (2) qualifying heats of 70 laps in length. One (1) refueling stop is mandatory in each heat.

3.2.

Final races shall be 140 laps in length with three (3) mandatory refueling stops.

3.3.

All races will be run with three (3) fliers. Races with less than three (3) will be considered only as exceptions based on the number of entries

4. Field Layout.

4.1.

The Inner Circle shall be 68-foot radius.

4.2.

The Outer Circle shall be 76-foot radius.

CONTROL LINE MOUSE AND ½A SCALE RACING FOR EVENT 313, 314, 315, 316.

CL Mouse I and Scale Racing								
Class/Engine Size (cubic inch)	Max. Model Weight	Minimum Line Length	Required Minimum Diameter of Each Line					Pull Test
			Single Strand			Multi-Strand		
			1 Line	2 Lines	3 Lines	2 Lines	3 Lines	
.0504	1 lbs	42'0"-42'6"	--------	.010"	--------	.012"	--------	7.5 lbs
CL Mouse II Racing								
.0504	1 lbs	47'6"	--------	.010"	--------	.012"	--------	7.5 lbs

Class I Mouse (Official)

Class II Mouse (Official)

Class I Scale (Supplemental)

Class II Scale (Supplemental)

1. Applicability.

All rules from the Unified Control

Line Racing rules apply to this event except as modified, appended or specified here.

2. Model Specifications.

2.1.

There shall be two (2) classes of competition:

Class I: Any reed valve engine with an integral tank. Spring-type starters which are mounted on

the engine and carried by the engine in flight may be used. Models must have an exposed control system.

Class II: No restriction as to type of engine.

2.1.1.

The maximum length of the exhaust system as measured along its center line from the face of the piston shall be 0.5 inches.

2.2. Mouse Racer (Class I and II).

2.2.1.

There are no restrictions to the aircraft configuration, except that the aircraft must have fixed landing gear and must ROG (single wheel gear permissible).

2.2.2. Fuel:

Class I: Fuel is not restricted.

Class II: Fuel will be contest supplied 10 percent nitromethane and 20 percent lubricant.

2.2.3.

Spring starters are not allowed in Class II.

2.3. Scale Racer (Goodyear) (Class I and II).

2.3.1.

The aircraft must be a model of an actual Goodyear racer or Formula I racer, and must be of the "profile fuselage'' type. The engine must not be cowled in. The model must have clear or contrasting canopy. Cowls or "apple cheeks" as used on full-sized aircraft are recommended but not required. The model must have a scalelike paint scheme, not necessarily the same color, but representative of full-scale racers. The model must have racing numbers on the fuselage sides and the upper left-hand wing. The contestant's AMA number should appear as part of the scale like license number on the upper right-hand wing. It may be preceded by "N'' at the contestant's option.

2.3.2.

The model must have a minimum consistent scale of one inch to the foot (1/12-scale). All scales must be within a plus or minus five (5) percent in the top and side profiles (views) with the exception of the stabilizer area and fuselage width. Models which appear to comply with this tolerance upon rudimentary inspection need not be further checked, except in the case of dispute. Burden of proof rests with the contestant.

2.3.3.

Stabilizer area may be increased up to 25 percent of wing area but must retain scale configuration.

2.3.4.

The landing gear must be of the same configuration as the actual aircraft, e.g., two (2) separated struts, and must exit from the scale position, but it may be longer, shorter, swept forward or swept backward.

3. Model Safety Requirements.

3.1.

In order to not 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.

4. Races.

4.1.

Each contestant shall be allowed two (2) qualifying heats of 50 laps (Class I) or 70 laps (Class II) in length. One (1) refueling stop is mandatory in each heat.

4.2.

Final race(s) shall be 100 laps (Class I) with two (2) mandatory refueling stops, and 140 laps (Class II) with three (3) mandatory refueling stops.

4.3.

All races shall be run with at least two (2) but no more than three (3) fliers.

5. Field Layout.

5.1.

The Inner Circle shall be 48-foot radius.

5.2.

The Outer Circle shall be 58-foot radius.

CONTROL LINE SCALE RACING FOR EVENT 317.

CL Scale Racing								
Class/Engine Size (cubic inch)	Max. Model Weight	Minimum Line Length	Required Minimum Diameter of Each Line					Pull Test
			Single Strand			Multi-Strand		
			1 Line	2 Lines	3 Lines	2 Lines	3 Lines	
.000-.1525	4 lbs.	59'6"-60'6"	--------	.014"	--------	--------	--------	25 lbs

1. Applicability.

All rules from the Unified Control

Line Racing Rules apply to this event except as modified, appended or specified here.

2. Model Specifications.

2.1.

The airplane must be a model of an actual Goodyear racer or Formula I 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 center line from the face of the piston shall be .95 inches.

2.2.

The model must have a minimum consistent scale of 11/2 inches to the foot (1/8 scale). All scales must be within a plus or minus five (5) percent for the top and side profiles (views) with the exception of the stabilizer area and the fuselage width. (This allows for profile-type models.) Models

which appear to comply with this tolerance upon rudimentary inspection need not be further checked except in case of dispute.

2.2.1.

The stabilizer area may be increased up to 25 percent of wing area, but must maintain scale configuration.

2.2.2.

The landing gear must be of the same configuration as the actual aircraft, e.g., two (2) separated struts, and must exit from the scale location, but it may be longer, shorter, swept forward or backward (wheel pants optional).

2.2.3.

Cowls or "apple cheeks'' as used on the full-size aircraft are recommended but not required.

2.3.

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

2.3.1.

The scale canopy outline may be clear or painted a contrasting color.

2.3.2.

The model must have racing numbers on the fuselage and on the upper left wing.

2.3.3.

The contestant's AMA number should appear as part of the scale like license number on the upper right wing. It may be preceded by "N'' at the contestant's option.

3. Races.

3.1.

Each contestant flies one qualifying heat of 70 laps in length. One refueling stop is mandatory.

If time permits, two (2) back-to-back 70 lap heats may be flown

3.2.

Final race(s) shall be 140 laps in length with three (3) mandatory refueling stops.

3.3.

All races shall be run with no less than two (2) fliers and no more than three (3) fliers.

4. Field Layout.

4.1.

The Inner Circle shall be 68-foot radius.

4.2.

The Outer Circle shall be 76-foot radius.