Competition Regulations 2013-2014

Rules Governing Model Aviation Competition in the United States

Radio Control Soaring

Amendment Listing

Original Issue	1/1/2013	Publication of Competition Regulations
Design date for event 461	1/1/2013	Page 2/3

Radio Control Soaring

RADIO CONTROL SOARING
Note: For FAI events, see the FAI Sporting Code. **The FAI Sporting Code may be obtained from AMA Headquarters. (When FAI events are flown at AMA sanctioned contests, the common practice is to only use the basic model specifications and related items, such as timing procedures, from the FAI rules. Contest management and procedures usually follow the basic rule structure found in the General sections and Specific category sections of the AMA Competition Regulations book.)**
For events 441, 442, 443, 444, 451, 452, 453, 454, 458, 460, 461.

1. Objective: The objective of these rules is to provide competition standards for radio controlled model sailplanes, both thermal and slope soaring.

2. General: With specific reference to thermal or "flatland" competition, these rules provide flight tasks suitable for single event contests, such as Duration or Speed. They also provide a variety of tasks from which the Contest Director can select to define a challenging contest of several different events that is tailored especially for a given location, normal weather conditions, and expected attendance.

3. Model Sailplane Specifications:

3.1: The following classes of sailplane shall be allowed for competition and the number of control functions (servos) are unlimited.

3.1.1: Class A—Hand-Launch Sailplanes. Projected span limited to one and one-half (1-1/2) meters or less. (Hand-launch only designates class and size. Models may be hand launched or launched by equipment provided by CD (see rule 9.))

3.1.2: Class B—Two (2) Meter Sailplanes. Projected span limited to two (2) meters but greater than one and one-half (1-1/2) meters.

3.1.3: Class C—Standard Class Sailplanes. Projected span limited to 100 inches but greater than two (2) meters.

3.1.4: Class D—Unlimited Class Sailplanes. Projected span greater than 100 inches.

3.1.5: Scale—see event 517.

3.1.6: For Event 460: RES Class Sailplanes.

a. Control of the aircraft will be limited to three functions: rudder, elevator, and spoilers.

b. Except in the case of tailless aircraft that have a portion of the trailing edge of the wing serve as the elevator, the trailing edge of the wing must remain fixed at all times. In the excepted case, where split elevators are used, they may be driven by separate servos but both left and right halves must at all times move in unison and deflect by the same amount and in the same direction.

c. Spoilers and/or air brakes must extend only above the top surface of the wing when deployed. The trailing edge of the spoiler/airbrake must be at least two inches ahead of the trailing edge of the wing. Two or more spoiler/air brakes may be used, but they must all act in unison and extend above the surface of the wing by the same amount when deployed.

3.1.7: For Event 461: Nostalgia

3.1.7.1: Date of Release

3.1.7.1.1: The latest accepted magazine, or book, cover date for the 'published design', or the manufacturer's 'construction plans date' of a kit will be prior to 1/1/80. Models that have been kitted, but where there is no date on the plan or on the instructions, an advertisement in a dated magazine or book can be used for dating of the design.

3.1.7.1.2: If the plan used for construction and documentation was published in a book or magazine, all of the parts of the plane must be scalable and buildable from the plan. The aircraft construction and materials must be detailed, and not just a 3-view. This is especially important for the shape of the airfoil if it is not from a published set of coordinates.

3.1.7.1.3: If the 'kit' or 'published design' had several construction plan dates that include modifications to the original design, only those changes made prior to 1/1/80 will be accepted.

3.1.7.2: Airframe Requirements;

3.1.7.2.1: Items That Must Duplicate the Original:

3.1.7.2.1.1: The plane must replicate the original styling and appearance and comply with

the vision of the Nostalgia event (Vision is stated under Special Items).

3.1.7.2.1.2: Airfoil.

3.1.7.2.1.3: Plan form, moments and surface areas of all components of the flying surfaces including the flying surfaces.

3.1.7.2.1.4: Fuselage form or styling in outlines both in side and plan views as well as cross-sectional shapes.

3.1.7.2.1.5: Basic construction materials and techniques such as open-bay wing structure, wood vs. fiber reinforced plastic, etc.

3.1.7.2.2: Items That Can Deviate From the Original:

3.1.7.2.2.1: Control surfaces:

3.1.7.2.2.1.1: If desired on a plane with no glide control capability designed in originally, spoilers may be added to the upper wing surface at, or about, the high point of the airfoil as long as the plans do not call for any other glide control device. If the plans have a glide control system shown, it must be the one used and shall not be deviated from. If spoilers are added, they must be designed to minimize the effect on the styling of the original aircraft. An example would be on an open structure wing; the spoiler system must be of minimal dimensions including the area around the spoiler bay used to attach the covering).

3.1.7.2.2.2: Any interior, non-visible, structural modifications to enable the plane to handle modern launching equipment and techniques. Some examples could be:

3.1.7.2.2.2.1: Substitute spruce for balsa

3.1.7.2.2.2.2: Carbon fiber reinforcements

3.1.7.2.2.2.3: Larger wing joiner rods

3.1.7.2.2.2.4: Stronger tow hook systems

3.1.7.2.2.2.5: Wing incidence and Decalogue

3.1.7.2.2.2.6: Wing mounting (bolt on vs. rubber bands)

3.1.7.2.2.2.7: Removable or bolt on stabs rather than permanent stabs as long as the assembled position replicates the original and the visible architecture is unchanged.

3.1.7.2.2.2.8: Dihedral (either tips or center or both) can be modified a maximum of +/-25% of the original to suit personal preferred handling characteristics

3.1.7.3: Special Items:

3.1.7.3.1: Radios can be of any type legal to operate and electronic mixing is allowable on any set surfaces.

3.1.7.3.2: The use of landing arrestor devices is prohibited. This does not eliminate the use a smooth surface skid to protect the bottom landing surface of the aircraft from scratches and nicks.

3.2: Unless otherwise stated hereunder, model sailplanes must comply with all applicable AMA and FCC specifications.

3.3: Sailplanes flown in AMA soaring competitions shall not exceed the FAI limitations for weight and total lifting surface area for model sailplanes. Exception: The FAI nose radius restriction shall apply to one (1) view only; however, knife-edge frontal area is prohibited. Additionally, in reference 3.3.3. “Loading” “exceed” is taken to mean only greater than 24.57 ounces per square feet, not below 3.95 ounces per square feet.

FAI Specifications:

1. Maximum surface area (ST)—150 decimeters2 (2325 square inches).

2. Maximum flying mass—5 kilograms 11.023 pounds).

3. Loading on the ST between 12 and 75 grams/decimeters2 (between 3.95 and 24.57 ounces/square feet).

4. Minimum radius of fuselage nose—7.5 millimeters (.295 inches). Exception: The FAI nose radius restriction shall apply to one (1) view only; however, knife-edge front area is prohibited.

4. Pilot Qualification: Unless otherwise stated hereunder, pilots of model sailplanes must comply with all applicable AMA and FCC regulations.

5. Number of Models: The number of models which may be entered in a contest is governed by the following rules:

5.1: Class A HLG

a. The number of models is unlimited.

b. Only one model may be within the bounds of the field (as defined in section 1.5.2, during the pilot’s briefing) during a competition round. The pilot may switch planes during the round as the pilot deems necessary.

5.2: Class B-D

a. Each contestant shall be limited to two models.

b. Either model may be flown at anytime throughout the contest at the discretion of the competitor

c. One (1) Sailplane/One (1) Wing Rule. An alternate wing, including wing

modifications by addition or by removal of tip extensions, when used with the fuselage of the primary model shall constitute an alternate model.

d. Any given primary or alternate model may be entered by only one (1) contestant.

e. In combined class events, a contestant may enter only one (1) of those classes; however, in multi class events (where awards are made for more than one (1) class), a contestant may enter in and fly in each class.

6. Safety: Consideration of safety for spectators, contest personnel, and other contestants is of the utmost importance. Any unsportsmanlike conduct or hazardous flying over a controlled spectator area will be cause for immediate disqualification from the contest.

7. Competition Flights: Each competitor will be afforded a like number, and normally at least three (3) official flights in regular competition rounds.

7.1: Official Flights. An official flight is considered to have occurred when the model has left the hands of the competitor or his assistant in a commitment to flight.

7.2: Re-launches. A re-launch is permitted at the discretion of the contestant when in the judgment of the CD:

a. The contestant's model collides in flight with another model or an obstacle without the fault of the competitor.

b. The flight was not judged by fault of the judges or timing equipment.

c. The CD supplied launching system malfunctions.

7.3: Annulment of a flight.

7.3.1: A flight is annulled if flown in whole or in part by anyone other than the contestant. This does not include help handling the model at launch or help operating a winch.

8. Organization of Flight Order: The flight order shall be arranged in accordance with radio frequencies in use so as to permit as many flights simultaneously as possible and thereby help equalize the weather conditions for all competitors. Flying will normally be scheduled in rounds with the flying order in each round arranged by lot, within frequency limitations.

9. Launch Equipment: Unless otherwise specified, all launches will be made in "flatland" contests by equipment provided by the Contest Director. Launch line length shall be limited to a maximum of 300 meters (984 feet). The launch line is interpreted to be that portion which extends from the turnaround to the sailplane. The "land line" is that portion from the turnaround to the winch drum.

9.1: All motor powered winches will have a disconnect switch installed in the positive cable to the electric motor or a disconnect in the ignition circuit of a combustion engine.

10. Contest Guidelines and Definitions:

10.1: General.

a. Frequency control will be strictly enforced, and all transmitters shall be impounded when not released by the CD for use.

b. The Builder-of-the-Model rule shall apply only in scale events.

c. A contestant may enter a Class A sailplane in Class A, B, C, or D events, or his Class B sailplane in Class B, C, or D events, or a Class C sailplane in Class C and D events in sanctioned competition only, not for establishing records.

d. Hand launches will be made for all official competition unless otherwise specified by the Contest Director.

e. Right-of-Way Rule. A sailplane attached to the launch equipment and therefore in the process of being launched has the right of way over sailplanes in flight. In the event of a collision between a model in flight and a launching model or its launch equipment, the contestant with the launching model may, at the end of his official flight, decide whether to keep his score or take a relaunch under 7.2.a. The contestant with the in flight model is not eligible for a reflight. This rule is intended to keep models in flight out of the launch area.

f. Thermal Sensor Rule. Thermal sensing devices shall be permitted provided that any such device and the contestant comply with all FCC regulations and that any such device does not interfere with the conduct of the contest. No special arrangement or rearrangement of flight order, established as noted above, shall be made in consideration of such devices.

g. Model sailplanes shall be launched as rapidly as possible during any given flight round with due regard for frequency control and safety. An open winch may be used.

h. The term "Contest Director" as used in these rules shall be understood to mean the Contest Director or other official designated to act in his behalf (i.e., winch master, frequency controller, etc.).

i. The term "nose" as used in these rules shall be understood to mean the extreme forward part of the model.

10.2: Timing.

10.2.1: Preparation and Launch Time. Each competitor shall be allowed a maximum preparation and launch time as announced by the CD prior to the beginning of the competition.

a. This time shall begin when the contestant is called to fly, his radio frequency is available and operable launch equipment is available.

b. This time shall end at the instant the model separates from the launch equipment.

c. Models failing to release from the launch equipment within the allotted preparation and launch time shall be charged with an official flight and given a zero (0) flight score and a zero (0) landing score for the attempt.

d. The CD may extend this time in individual cases in the interest of safety.

10.2.2: Flight Timing.

a. Timing of all launched flights will begin at the instant of towline release.

b. Timing will end when the model contacts the ground or a ground based object such as a tree, car, or person. The time will be rounded to the nearest second.

c. If the model disappears behind some obstacle or cloud:

1. The timer is allowed to wait a maximum of 10 seconds;

2. If the model does not reappear, timing shall cease and the 10 seconds shall be subtracted from the time of flight.

d. Use of binoculars or other sight augmenting devices by timers is forbidden.

e. The official timer shall not provide a countdown during the last 10 seconds of the flight (a helper should be used). The manner of countdown should be established prior to takeoff by the contestant.

10.3: General Rules for Thermal Soaring Contest. None.

10.4: General Rules for Slope Soaring Contests. In slope soaring events when more than one (1) sailplane is airborne, each sailplane must make all turns away from slope except as necessary for landing. Passing of oncoming traffic shall be to the right.

10.5: Contest Director Responsibilities. In addition to the responsibilities defined in the introductory portions of this rule book, Contest Directors holding RC soaring contest have the following additional responsibilities.

10.5.1: Prior to the day(s) of the contest, the CD shall provide as part of the contest notice:

a. Task(s) to be flown.

b. Landing option(s) to be used.

c. Sailplane classes to be recognized.

d. A description of the launching equipment to be used and its general capabilities. (This is generally understood to include line length, line strength, voltage and drum diameter for electric winches.)

e. Exceptions to the rules published in this rule book.

f. Score normalization option to be used, if any.

10.5.2: Pilot's Meeting. At the pilot's meeting prior to competition, the CD shall:

a. Provide the basic rules for each flight task and landing option in written form if they differ from the rules defined in this book.

b. Review the basic rules for each flight task and landing option.

c. Clearly define any out-of-bounds areas.

d. Review the method to be used to normalize scores.

e. Exceptions to the rules published in this rule book.

11. Scoring: General. The intent of having multiple tasks available is not to select one (1) task and have a contest, but rather to use as many tasks as possible during each contest. Especially for contests of two (2) or more days, it is presumed that three (3) or four (4) tasks will be flown. It is further presumed that all the tasks will be flown with the same model, with one (1) backup model to be used only when the primary model is unflyable for the remainder of the contest. See section 5. When the multiple tasks are flown, it is imperative that the scoring of each task be weighted equally to the scores of all tasks. Since some tasks have maximum attainable scores (for instance, a Precision task with 200 points possible) while some tasks are open-ended and have no maximum attainable limit (for instance, the distance task), it is necessary to normalize each task to some base score. To accomplish this, two (2) methods of normalization are described below.

11.1: Option Selection. The Contest Director may select either of the scoring methods defined below or a variation which preserves

their intent provided he complies with the requirements of rule 10.5.2.

11.2: Posting Scores. Wherever possible, competition scores shall be posted in a conspicuous place and kept current during progress of the contest.

11.3: Tie Breaking. In case of a tie for first place, a fly-off will determine the winner.

11.4: Scoring Options.

11.4.1: Option 1—Normalization of winner's score. To accomplish this, the winner of each task is given 1,000 points and succeeding places are proportionately scored.

11.4.2: Option 2—The method of achieving normalization is exactly the same as option 1, except that normalization will take place within each flight group instead of at the end of a round. This option shall be called "Man on Man."

11.4.2.1: Example Application of Option 1 and 2. Duration, Precision, and Distance Task. Duration flight points and landing points (if applicable) are totaled for each contestant, for all duration task rounds. The total number of points for each contestant is then compared as a ratio to the highest number of points scored and multiplied by 1,000 thus:

$$\text{Duration score} = \frac{P(C) \times 1{,}000}{P(W)}$$

The same procedure applies to Precision tasks.

$$\text{Duration score} = \frac{P(C) \times 1{,}000}{P(W)}$$

P(C) = Total number of points accumulated by contestant.

P(W) = Total number of points accumulated by task winner.

The scoring for the Distance task is a direct relationship of how far the contestant flew relative to the greatest distance flown.

$$\text{Distance score} = \frac{TL(C) \times 1{,}000}{TL(W)}$$

TL(C) = Total number of 1/4 laps flown by contestant.

TL(W) = Total number of 1/4 laps flown by task number.

Listed below is an example for a Duration task. Precision and Distance tasks are scored similarly.

	First Round		Second Round			
Contestant	Flight Points	Landing Points	Flight Points	Landing Points	Total Points	Flight Score
1	600	50	430	25	1105	1000
2	550	100	250	25	925	837
3	400	0	600	50	1050	950

Speed Task. The scoring of the speed task is based directly on speed for contestants who fly the required number of one-quarter (1/4) laps, and distance for those who fail to complete the course.

Therefore:

Complete the course.

$$\text{Score} = \frac{\text{speed}}{\text{fastest speed}} \times 1{,}000$$

Fail to complete the course.

$$\text{Score} = \frac{\text{distance (1/4) laps}}{\text{goal distance (1/4) laps}} \times$$

Below is shown an example of one (1) round of the speed task.

Contestant	¼ Laps Flown	Time / Seconds	Speed / 1200 Meters / Time In Seconds	¼ Laps Flown / Goal Distance	Score Highest speed lowest score to complete course
1	16	180	6.65	--	779
2	12	--	--	.75	457
3	6	140	--	.375	229
4	16	--	8.55	--	1000
5	16	230	5.20	--	610
6	10	--	--	.28	361

Goal distance = 4 laps = 16-1/4 laps = 1,200 meters.

Sample Calculations. Contestant number one completed the course so his score is computed as follows:

$$\text{Speed} = \frac{\text{1200 meters}}{\text{180 seconds}} = 6.65 \text{ meters/seconds}$$

Winner's speed

$$\text{(Contestant No. 1)} = \frac{1200 = 8.55 \text{ meters/seconds}}{855} = \times 1{,}000 = 779$$

Contestant number 6 failed to complete the course so his score is:

Distance flown = 10-1/4 laps

Goal distance = 16-1/4 laps

Lowest score to complete course

(Contestant number 5) = 610

Score

$$\text{(Contestant No. 6)} = \frac{10}{\text{Score}} \times 610 = 381$$

Because of the nature of scoring the speed task as either speed or distance, depending upon whether the course is completed or not, more than one (1) round requires renormalizing the scores so that the overall winner of the speed task receives 1,000 points, just as in all other tasks. This requires then that the scores of each round, as completed above, are summed and the final score becomes:

Final speed score =

$$\frac{\text{Total of contestant's scores for all rounds}}{\text{Winner's total (highest of all total rounds)}} \times 1{,}000 =$$

11.4.2.2: Option 2—Normalization of the Ideal Score. At large contests, or when prompt results are desired, the perfect score for the task may be substituted for the winner's score in the examples in Option 1 above when scoring the last round of competition (see 11.4.1.), thus allowing computation of the normalized scores on a flight-by-flight basis. This option eliminates the need to wait until all flights in the last round are completed before normalization may begin. Example Application of Option 2. If the final round of 10-minute duration is to be flown with 100 bonus landing points possible, the perfect score for the task would be (600 + 100) = 700 points. Individual normalized scores are determined as before:

$$\frac{\text{Flight points + landing points}}{700} \times 1{,}000 =$$

The speed and distance tasks may also be scored in this manner if maximum distances and minimum speed times are established, thereby defining "perfect'' distance and speed task scores, respectively. If the speed and distance scores are to be computed by this method, the "perfect scores'' must be announced at the pilot's briefing.

12. Landing Options: General: It is recognized that the below-listed landing options are quite broad in scope. This was done intentionally to allow the Contest Director to have a wide latitude for selection of the best option for local conditions.

12.1: Selection of Landing Option. The CD may use any landing option defined in this section in conjunction with any task defined in sections 13, 14, or 15 which is consistent with safety considerations, weather conditions, local terrain, etc. Landing points should not be in disproportion to possible flight points. Beauty, realism, and fun are also considerations.

12.2: Lost Parts Rule. No landing points shall be awarded if the model loses parts during landing.

12.3: Inverted Landing Rule. No landing points shall be awarded if the model comes to rest in an inverted position.

12.4: When using a landing option with a restricted landing area, neither the pilot nor his helper shall stand in the landing area during approach and landing, for reasons of safety and fairness to other models in the pattern. Repeated violations will be cause for disqualification.

12.5: The retrieval of a model from a landing area must be done with extreme caution and the utmost dispatch. If a measurement is required, the position of the nose of the model may be marked and the model removed. The measurement may be performed at a later, safer time.

12.6: Landing Options.

12.6.1: L1—No landing requirements. Nose of model must come to rest within bounds of field as defined in 10.5.2., Pilot's Briefing.

12.6.2: L2—Flight Qualification Requirements. Nose of model must come to rest within a 100 meter (328 foot) diameter circle to qualify the flight and score the flight points. No additional points are awarded for landing.

12.6.3: L3—Bonus Landing. An additional 100 points will be added to the flight score if the nose of the model comes to rest within a 25 meter (82 foot) diameter circle. The 25 meter diameter circle shall be used for purposes of rule 12.4.

12.6.4: L4—Spot Landing. Bonus points will be added to the flight score for landings made to a spot. A maximum of 100 bonus points will be added to the flight score with a loss of four (4) points per foot away from the spot to a maximum of 25 feet. The 25 foot radius circle shall be used for purpose of rule 12.4. Recommendation: This option is most efficiently used by providing a tape or chain firmly anchored at the center, graduated in three (3) inch increments and labeled so as to read the landing score directly in one (1) point steps.

Scale Runway

← Landing Direction →	25 Points

12.6.5: L5—Scale Runway. Bonus points will be awarded to the flight score for landings made on a scale runway defined below. The nose of the model must come to rest on the runway to receive bonus points as shown. The runway bounds shall be used for purposes of rule 12.4. Recommendation: Outline runway with gypsum or other suitable material for visibility. However, official dimensions of runway are to be defined with string or lightweight line, stretched taut, for measurement purposes.

12.6.6: L6—Graduated Runway. Bonus points will be added to the flight score for landing within the graduated runway. The runway is defined by a center line 50 feet long and as closely aligned with the wind as practical and extends 100 inches either side of this center line. A model which comes to rest with its nose beyond the ends of the center line or more than 100 inches to the side of the center line shall receive zero (0) bonus points. A model which comes to rest within the graduated runway will receive a maximum of 100 bonus points, with a loss of one (1) point per inch measured from the nose of the model to the centerline of the runway. The 200 inch by 50 foot runway shall be used for purposes of rule 12.4. Recommendation: Experience has shown that a 100 inch long piece of one-half (1/2) or one-fourth (1/4) inch diameter plastic pipe (PVC) marked off in one (1) inch increments to directly read the landing points is a simple and effective method of obtaining landing scores with this option.

12.6.7: L7—Bonus Flight Points. Contestant is awarded landing bonus points equal to 10 percent of his flight points if:

a. Model comes to rest inside the 164' x 164' landing area.

b. The 164' x 164' area shall be used for purposes of rule 12.4.

13. Thermal Soaring Tasks:

13.1: Task T1—International Duration.

13.1.1: Concept. The objective is to remain aloft for 10 minutes (or less as established by the Contest Director) but no more than one (1) minute longer. This is the basic duration task.

13.1.2: Rules.

13.1.2.1: An official timer shall record the flight time as specified in section 10.2.2., Flight Timing.

13.1.2.2: One (1) point shall be awarded for each second of flight time up to a maximum of 600 points (10 minute maximum). All fractions of a second shall be dropped.

13.1.2.3: One (1) point shall be deducted from the maximum score for each second flown in excess of the 600 seconds to a maximum of 600 points (10 minute maximum).

13.1.2.4: No landing bonus will be awarded if the flight time exceeds 11 minutes, or exceeds by one (1) minute whatever maximum time has been specified by the CD.

13.1.2.5: The organizers may run more than three (3) rounds provided they announce this prior to the end of the second round.

13.1.2.6: At the discretion of the CD, the maximum flight time may be decreased to not less than five (5) minutes with a corresponding decrease in the maximum possible score. The times stated in 13.1.2.2. and 13.1.2.3. shall be identical. This change must be announced prior to the start of the first official flight of the contest in accordance with section 10.5.2., Pilots Meeting.

13.1.2.7: Scoring. The score for each flight shall consist of the sum of the flight points and the landing points.

13.2: Task T2—Simple Duration.

13.2.1: Concept. The objective is to remain airborne as long as possible or until a pre-selected maximum flight time has been reached. If the model succeeds in achieving the maximum time, an additional three (3) minutes is allowed, without further flight score, to land the model. Flight beyond the three (3) minute landing allowance voids the flight for flight score.

13.2.2: Rules.

13.2.2.1: An official timer shall record the flight time as specified in section 10.2.2., Flight Timing.

13.2.2.2: The CD shall select a duration option from the list below and comply with rule 10.5.2. Pilot's Meeting.

Duration Options

1. Maximum duration of five (5) minutes (300 seconds)—Maximum score 300 points.

2. Maximum duration of 10 minutes (600 seconds) —Maximum score 600 points.

3. Maximum duration of 15 minutes (900 seconds) —Maximum score 900 points.

4. Maximum duration time other than above, scored on the basis of one (1) point per second.

13.2.2.3: One (1) point shall be awarded for each second of flight up to the maximum established by the CD.

13.2.2.4: The contestant shall be allowed three (3) minutes beyond the maximum flight time in which to land without penalty. Flight beyond the three (3) minute landing allowance voids the flight for flight score, including landing points.

13.2.2.5: Scoring. The score for each flight shall consist of the sum of the flight points and the landing points.

13.3: Task T3—Precision Duration.

13.3.1: Concept. The objective of this task is to remain aloft, after release, as close as possible to a 10 minute maximum flight.

13.3.2: Rules.

13.3.2.1: An official timer shall record the flight time as specified in section 10.2.2., Flight Timing.

13.3.2.2: Award of flight points shall be as follows (see Precision Duration Scoring Chart):

a. Contestant will receive flying points on the basis of one (1) point per second of duration from zero (0) time to 9 minutes, 30 seconds.

b. From 9:30 to 10:00 (perfect flight) he will receive points on the basis of an exponential curve or chart.

c. From 10:00 to 10:30 his awarded points will decrease on the basis of the same curve or chart.

d. From 10:30 to 12:00 minutes his point award will decrease uniformly to zero (0) points.

13.3.2.3: If the 10 minute maximum flight time is reduced by the CD the contestant will receive flying points on the same basis as the 10 minute maximum flight and from the same scoring chart. This is done by simply adding the equivalent number of minutes to each flight by which the 10 minute maximum flight was reduced.

13.3.2.4: No landing bonus shall be awarded if the flight exceeds by one (1) minute whatever maximum time has been specified by the CD.

13.3.2.5: At the discretion of the CD, the maximum flight time may be decreased to not less than five (5) minutes. This change must be announced in accordance with section 10.5.2., Pilot's Meeting.

13.3.2.6: Scoring. The score for each flight shall consist of the sum of the flight points and the landing points (see Duration Flight Scoring Chart).

13.4: Task T4—Cumulative Duration.

Task T3 Precision Duration
10 Minute Maximum Flight

Time Mins	Points	Time Mins	Points	Time Mins	Points
1	60	15	609	9	323
2	120	16	606	10	317
3	180	17	602	11	310
4	240	18	599	12	304
5	300	19	596	13	298
6	360	20	593	14	291
7	420	21	590	15	285
8	480	22	588	16	279
9	540	23	585	17	272
9:30	570	24	583	18	266
31	572	25	580	19	260
32	574	26	578	20	253
33	576	28	576	21	247
34	578	28	574	22	241
35	580	29	572	23	234
36	583	30	570	24	228
37	585	31	564	25	222
38	588	32	557	26	215
39	590	33	551	27	209
40	593	34	545	28	203
41	596	35	538	29	196
41	599	36	532	30	190
42	602	38	527	31	184
44	606	38	519	32	177
45	609	39	519	33	171
46	613	40	509	34	165
47	617	41	500	35	158
48	621	42	494	36	152
49	626	43	488	37	146
50	631	44	481	38	139
51	636	45	475	39	133
52	641	46	469	40	127
53	647	47	462	41	120
54	653	48	456	42	114
55	660	49	450	43	108
56	667	50	443	44	101
57	674	51	437	45	95
58	682	52	431	46	89
50	691	53	424	47	82
		54	418	48	76
10:00	700	55	412	49	70
01	691	56	408	50	63
02	682	57	399	51	57
03	674	58	393	52	51
04	667	59	386	53	44
05	660			54	38
06	653	11:00	380	55	32
07	647	01	374	56	25
08	671	02	367	57	19
09	636	03	361	58	13
10	631	04	355	59	6
11	626	05	348	12:00	0
12	621	06	342		
13	617	11:07	336		
10:14	613	08	329		

Example A (using landing option E)

Flight Time		Flight Points	Land Points	Penalty Points
	5:20	320	100	0
	7:10	420	25	10
	2:47	160	0	7
(target time)				
	2:40	900	125	17

900 + 125 - 17 = 1008

Example B

Flight Time		Flight Points	Land Points	Penalty Points
	6:59	419	50	0
	1:51	111	50	0
	5:19	319	0	0
(target time)				
	6:10	849	100	0

849 + 100 - 0 = 949

Example C

Flight Time		Flight Points	Land Points	Penalty Points
	3:26	206	25	0
	2:56	176	0	0
	4:27	267	0	0
(target time)				
7:00(7:38)		649	25	0

649 + 25 - 0 = 674

Precision Flight Score Table

Time Variance from Target (Seconds)	Points	Time Variance from Target (Seconds)	Points
30	0	14	40
29	1	13	45
28	2	12	50
27	3	11	55
26	4	10	60
25	5	9	65
24	6	8	70
23	7	7	75
22	8	6	80
21	9	5	85
20	10	4	90
19	15	3	95
18	20	2	97
17	25	1	99
16	30	0	100
15	35		

13.4.1: Concept. The objective of the cumulative duration event is to make three (3) flights which total exactly 15 minutes, zero (0) seconds. This event offers an excitement which builds through to the final moments of the contest. This particular facet can maintain a lively spectator interest, as well as maintain a competitive spirit during a long, hot, dry day. In precision duration, competition is usually wide open until the last few flights of the last flight round.

13.4.2: Rules.

13.4.2.1: An official timer shall record the flight times of each of the three (3) flights constituting a complete round of this task as specified in section 10.2.2., Flight Timing.

13.4.2.2: Each of the first two (2) flights are scored to a maximum of seven (7) minutes duration (420 seconds) at one (1) point per second, for 420 points. Penalty points are given at the rate of one (1) penalty point per second for flights in excess of the seven (7) minute maximum on each of the first two (2) flights.

13.4.2.3: A target time will be given to each contestant prior to the third flight. This target time is the time necessary for a perfect 15 minute three (3) flight total, or seven (7) minutes, whichever is less. The third flight is scored one (1) point per second up to the target time. Penalty points are given at the rate of one (1) point per second for time in excess of the target time. Landing points are awarded if landing option is used. The contestant is personally responsible for the accuracy of his target time, not the contest officials.

13.4.2.4: Landing bonus points may be awarded for all three (3) flights in accordance with the landing options in section 12, Landing Options.

13.4.2.5: The contestant flight points (900 points maximum) plus landing points, minus penalty points.

13.5: Task T5—Precision.

13.5.1: Concept. The objective of the Precision event is to fly for an exact and predetermined period of time. When a Precision event incorporates a landing requirement, the task demands the combination of precise flight time with precise flying accuracy.

13.5.2: Rules.

13.5.2.1: The Contest Director shall select a precision flight time target of two (2) or three (3) minutes and a landing option, and comply with section 10.5.2, Pilot's Meeting.

13.5.2.2: An official timer shall record the flight time as specified in section 10.2.2., Flight Timing.

13.5.2.3: Flight points shall be awarded in accordance with the precision flight score table. (see Precision Flight Score Table)

13.5.2.4: Scoring. The score for each flight shall consist of the sum of the flight points and the landing points.

Examples:

a. Target Time, 2 minutes, Actual time, 2 minutes, 12 seconds. Score 50 points.

b. Target Time, 2 minutes, Actual time, 1 minute, 48 seconds. Score 50 points.

c. Target Time, 3 minutes. Actual time, 3 minutes, 35 seconds. Score, 0 points.

d. Target time, 2 minutes. Actual time, 2 minutes, 0 seconds. Score, 100 points. Scale Runway Landing bonus points, 25. Total Precision Event Score, 125 points.

13.6: Task T6—Triathlon.

13.6.1: Concept. The objective of the Triathlon task is to simultaneously test the pilot's thermal soaring, precision flying, and landing accuracy while forcing him to continuously maintain a flight plan extending several minutes ahead of his current time. The duration, precision, and landing scoring described below should be adhered to in order to preserve the 60 percent, 20 percent, 20 percent relative weights designed into the Triathlon. Flight time scoring is in accordance with the Triathlon Scoring Table on the following page. The Triathlon Scoring Table is constructed by adding duration points as described in Task T1 International Duration to two (2) times the scoring shown in the Task T5 Precision Flight Score Table, assuming intermediate target times during the 10 minute flight at two (2), four (4), six (6), eight (8), and 10 minutes. This requires the pilot to carefully consider his position at two (2), four (4), six (6), and eight (8) minutes into his flight and determines if he should land at one of the intermediate target times and thus limit his duration points or continue and risk a landing at a time that would yield no precision points. An error in judgment may cost as much as 170 points.

13.6.2: Rules.

13.6.2.1: An official timer shall record the time of flight as specified in section 10.2.2., Flight Timing.

13.6.2.2: Flight points shall be awarded according to the Triathlon Scoring Table.

13.6.2.3: The pilot is not required to declare his anticipated landing time to the official timer.

13.6.2.4: The Triathlon was designed to be used in conjunction with the L4 Spot Landing or the L6 Graduated Runway landing option. To maintain the 60–20–20 scoring balance the landing should be worth 200 points, hence the point values for L4 and L6 should be doubled (see rule 12.1., Selection of Landing Option).

13.6.2.5: Scoring. The score for each flight shall consist of the sum of the flight points and the landing points.

Example

Flight Time = 6:15 landing 6.5 feet from L4 spot. Duration score = 375 points (one (1) point per second); Precision score = 70 points (15 seconds off nearest target time of 6 minutes yield 35 points which is double); Flight points = 70 + 375 = 445 (also see Triathlon Table); Landing points = 152 (see left right side of Triathlon Table); Round Score = 152 + 445 = 597; Perfect Score = 1,000

13.7: Task T7—Distance.

13.7.1: Concept. The objective is to fly as many laps as possible (maximum closed course distance) between two (2) parallel planes set 150 meters (492 feet) apart, in a specified time limit.

13.7.2: Rules.

13.7.2.1: The Contest Director shall select a maximum flight time and comply with section 10.5.2.

Recommendations. The maximum time is unspecified; however the following suggestion is in order. Since most sailplanes will stay aloft about three (3) minutes in still air, it is recommended that the minimum time be greater than that. Experience has shown that the maximums up to 10 minutes have worked out well. Extending the maximum beyond this, however, introduces a luck factor. It is suggested that the maximum time be in the order of five (5) to 10 minutes.

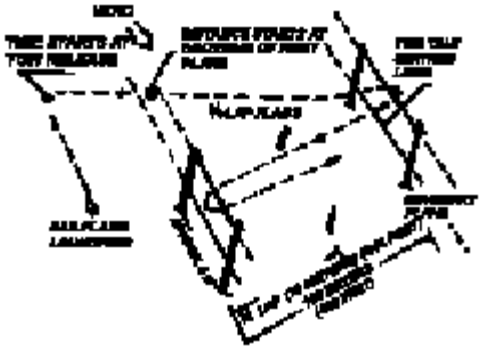
13.7.2.2. An official timer shall record the flight time as specified in section 10.2.2., Flight Timing and count the number of one-fourth (1/4) laps completed within the maximum allowed flight time.

13.7.2.3: If the contestant reaches the maximum time, the model must be landed within three (3) minutes in order to achieve any points for the round.

TRIATHALON

Min Sec	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Land Ft.	Land Pts.
0	0	60	320	180	440	300	560	420	680	540	800	540	480	420	360	300	240	180	120	60	0	200
1	1	61	319	181	439	301	559	421	679	541	797	539	479	419	359	299	239	179	119	59	1	192
2	2	62	316	182	436	302	556	422	676	542	792	538	478	418	358	298	238	178	118	58	2	184
3	3	63	313	183	433	303	553	423	673	543	787	537	477	417	357	297	237	177	117	57	3	176
4	4	64	304	184	424	304	544	424	664	544	776	536	476	416	356	296	236	176	116	56	4	168
5	5	65	295	184	415	305	535	425	655	545	765	535	475	415	355	295	235	175	115	55	5	160
6	6	66	286	186	406	306	526	426	646	546	754	534	474	414	354	294	234	174	114	54	6	152
7	7	67	277	187	397	307	517	427	637	547	743	533	473	413	353	293	233	173	113	53	7	144
8	8	68	268	188	388	308	508	428	628	548	732	532	472	412	352	292	232	172	112	52	8	136
9	9	69	259	189	379	309	499	429	619	549	721	531	471	411	351	291	231	171	111	51	9	128
10	10	70	250	190	370	310	490	430	610	550	710	530	470	410	350	290	230	170	110	50	10	120
11	11	71	241	191	361	311	481	431	601	551	699	529	469	409	349	289	229	169	109	49	11	112
12	12	72	232	192	352	312	472	432	592	552	688	528	468	408	348	288	228	168	108	48	12	104
13	13	73	223	193	343	313	463	433	583	553	677	527	467	407	347	287	227	167	107	47	13	96
14	14	74	214	194	334	314	454	434	574	554	666	526	466	406	346	286	226	166	106	46	14	88
15	15	75	205	195	325	315	445	435	565	555	655	525	465	405	345	285	225	165	105	45	15	80
16	16	76	196	196	316	316	436	436	556	556	644	524	464	404	344	284	224	164	104	44	16	72
17	17	77	187	197	307	317	427	437	547	557	633	523	463	403	343	283	223	163	103	43	17	64
18	18	78	178	198	298	318	418	438	538	558	622	522	462	402	342	282	222	162	102	42	18	56
19	19	79	169	199	289	319	409	439	529	559	611	521	461	401	341	281	221	161	101	41	19	48
20	20	80	160	200	280	320	400	440	520	560	600	520	460	400	340	280	220	160	100	40	20	40
22	22	82	158	202	278	322	398	442	518	562	594	518	458	398	338	278	218	158	98	38	22	24
23	23	83	157	203	277	323	397	443	517	563	591	517	457	397	337	277	217	157	98	37	23	16
24	24	84	156	204	276	324	396	444	516	564	588	516	456	396	336	276	216	156	96	36	24	8
25	25	85	155	205	275	325	395	445	515	565	585	515	455	395	335	275	215	155	95	35	25	0
26	26	86	154	206	274	326	394	446	514	566	582	514	454	394	334	274	214	154	94	34	26	0
27	27	87	153	207	273	327	393	447	513	567	579	513	453	393	333	273	213	153	93	33	27	0
28	28	88	152	208	272	328	392	448	512	568	576	512	452	392	332	272	212	152	92	32	28	0
29	29	89	151	209	271	329	391	449	511	569	573	511	451	391	331	271	211	151	91	31	29	0
30	30	90	150	210	270	330	390	450	510	570	570	510	450	390	330	270	210	150	90	30	30	0
31	31	93	151	213	271	333	391	453	511	573	569	509	449	389	329	269	209	149	89	29	31	0
32	32	96	152	216	272	336	392	456	512	576	568	508	448	388	328	268	208	148	88	28	32	0
33	33	99	153	219	273	339	393	459	513	579	567	507	447	387	327	267	207	147	87	27	33	0
34	34	102	154	222	274	342	394	462	514	582	566	506	446	386	326	266	206	146	86	26	34	0
35	35	105	155	225	275	345	395	465	515	585	565	505	445	385	325	265	205	145	85	25	35	0
36	36	108	156	228	276	348	396	468	516	588	564	504	444	384	324	264	204	144	84	24	36	0
37	37	111	157	231	277	351	397	471	517	591	563	503	443	383	323	263	203	143	83	23	37	0
38	38	114	158	234	278	354	398	474	518	594	562	502	442	382	322	262	202	142	82	22	38	0
39	39	117	159	237	279	357	399	477	519	597	561	501	441	381	321	261	201	141	81	21	39	0
40	40	120	160	240	280	360	400	480	520	600	560	500	440	380	320	260	200	140	80	20	40	0
41	41	131	161	251	281	371	401	491	521	611	559	499	439	379	319	259	199	139	79	19	41	0
42	42	142	152	262	282	382	402	502	522	622	558	498	438	378	318	258	198	138	78	18	42	0
43	43	15	163	273	283	393	403	513	523	633	557	497	437	377	317	257	197	137	77	17	43	0
44	44	164	164	284	284	404	404	524	524	644	556	496	436	376	316	256	196	136	76	16	44	0
45	45	175	165	295	285	415	405	535	525	655	555	495	435	375	315	255	165	135	75	15	45	0
46	46	186	166	306	286	426	406	546	526	666	554	494	434	374	314	254	194	134	74	14	46	0
47	47	197	167	317	287	437	407	557	527	677	553	493	433	373	313	253	193	133	73	13	47	0
48	48	208	168	328	288	448	408	568	528	688	552	492	432	372	312	252	192	132	72	12	48	0
49	49	219	169	339	289	459	409	579	529	699	551	491	431	371	311	251	191	131	71	11	49	0
50	50	23	170	350	290	470	410	590	530	710	550	490	430	370	310	250	190	130	70	10	50	0
51	51	241	171	361	291	481	411	601	531	721	549	489	429	369	309	249	189	129	69	9	51	0
52	52	252	172	372	292	492	412	612	532	732	548	488	428	368	308	248	188	128	68	8	52	0
53	53	263	173	383	293	503	413	623	533	743	547	487	427	367	307	247	187	127	67	7	53	0
54	54	274	174	394	294	514	414	634	534	754	546	486	426	366	306	246	186	126	66	6	54	0
55	55	285	175	405	295	525	415	645	535	765	545	485	425	365	305	245	185	125	65	5	55	0
56	56	296	176	416	296	536	416	656	536	776	544	484	424	364	304	244	184	124	64	4	56	0
57	57	307	177	427	297	547	417	667	537	787	543	483	423	363	303	243	183	123	63	3	57	0
58	58	312	178	432	298	552	418	672	538	792	542	482	422	362	302	242	182	122	62	2	58	0
59	59	317	179	437	299	557	419	677	539	797	541	481	421	361	301	241	181	121	61	1	59	0
Sec Min	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Land Ft.	Land Pts.

13.7.2.4: The Course. The sketch shows the 150 meter (492 feet) course. The course is set up perpendicular to the launch direction. This is done to put the course crosswind and to keep it away from launching sailplanes. As shown the course consists of two (2) poles at each end of the course. Between the two (2) poles are suspended an upper and lower taut line to define an imaginary vertical plane parallel to the vertical plane at the opposite end of the course. The sailplane is flown back and forth between the two (2) imaginary planes until it lands or until the maximum time is reached. It is only necessary to fly past the ends of the course, not around the poles. Two (2) flags are placed midway between the ends of the course to define a line that is parallel to the imaginary planes and divides the distance between them in half. This allows the distance to be measured in one-fourth (1/4) laps (75 meters or 246 feet). All distances are measured from the nose of the model. A flagman or audio system is used to signal crossing the ends of the course.



13.7.2.5: Scoring. The flight score shall be determined on the basis of one (1) point for each one-fourth (1/4) lap completed. If the model is airborne when the maximum flight time is reached the official timer shall count only the number of completed half (1/2) laps (see diagram).

13.8: Task T8—Speed.

13.8.1: Concept. To fly in the minimum time (maximum speed) a predetermined closed-course distance between two (2) parallel planes 150 meters (492 feet) apart.

13.8.2: Rules.

13.8.2.1: The CD shall select a goal distance (number of one-fourth (1/4) laps) and comply with section 10.5.2., Pilot's Briefing.

Recommendations. The maximum distance that most sailplanes can complete with little or no lift is about two (2) to two-and-one-half (2-1/2) laps (600–750 meters). The goal is set sufficiently difficult such that some percentage of the fliers will fail to complete the course. This will vary according to the weather conditions. Setting the goal too high can result in most fliers failing to complete the course, therefore turning it into a distance event which is not the intent. It is up to the CD to select the goal on the basis of the weather conditions. In general, experience has shown that a goal of three (3) to four (4) laps (900–1200 meters) is about right to accomplish the intent of the task.

13.8.2.2: The course is the same as used in task T7, Distance (see section 13.7.2.4.).

13.8.2.3: An official timer shall record the flight time as specified in section 10.2.2. except that timing shall stop at the instant that the model crosses the imaginary plane signifying completion of the goal distance.

13.8.2.4: If the sailplane fails to complete the goal distance, the distance achieved is measured (in one-fourth (1/4) laps). All distances are measured from the nose of the sailplane.

13.8.2.5: Scoring. See the speed scoring example in section 11.4.1.1 (example application of Option 1).

14: Slope Soaring Tasks.

14.1: Task S1—Closed Circuit Distance/Speed.

14.1.1: Concept. The objective is to make as many passes between two (2) pylons placed 100 meters apart on the hill or slope within six (6) minutes, landing in an area 50 by 100 meters within seven (7) minutes, with a landing score awarded.

Recommendations. This is the basic contest used in Europe at slope soaring sites. It is a sport where the flying is relaxed and unhurried. Normally only one (1) sailplane is flown over the course at any one time to avoid the possibility of midair crashes or variations in flight path to avoid other models. The landing area is generous and more than adequate for most sailplanes.

14.1.2: Rules. Rules are the same as for FAI Provisional Class "B'' rules for slope soaring with no exceptions. Scoring is 25 points for each completed circuit between two (2) pylons and 50 points for landing within the prescribed area in the allotted time. Flight scores are reduced one (1) point for each second the glider is airborne over seven (7) minutes.

14.2: Task S2—Pylon Speed.

14.2.1: Concept. The object is to race competitively against more than one (1) RC sailplane in the air at one (1) time for five (5) circuits around pylons placed a fixed distance apart on the face of a cliff or slope.

Recommendations. Conduct of slope pylon races should be at a place offering good lift at all times and providing adequate landing areas. The races should not begin until the wind velocity is at least seven (7) mph and should cease when the wind exceeds 45 mph. Definite inbound and outbound flight areas should be established between pylons to minimize midair collisions. All turns should be made into the wind. Experience in this Task proves this event to be one of the most fascinating, yet the most costly, of any type of RC gliding. The finals, in particular, are definitely interesting to the spectator, and most challenging to the contestant.

14.2.2: Rules.

14.2.2.1: Gliders are launched at random and when all are aloft behind the start/finish line an audible countdown from "Ten (10) to Zero (0)'' is given and the gliders are off in a "Flying Start.'' The glider must not be flown past the start/finish lineed to each contestant as is a flag man with a different colored flag at the far pylon. Each contestant may elect to have a copilot coach him and tell him when his model glider passes the far pylon as indicated when his identifying flag is dropped.

14.2.2.3: Five (5) laps are completed when the model is flown past the start/finish line heading in the same direction as when the race began.

14.2.2.4: Contestants must be raced without a conflict of frequencies. Races are flown in heats, with scoring graded from four (4) points for first place to zero (0) points for non-finishers. Then the finalists are selected (normally not more than 10) on the basis of highest points earned in the semifinals. In case of a final score tie—"Sudden Death'' flyoffs are used to determine the winner. When frequencies prevent this, each model is flown the five (5) laps against the clock, the lowest time winning the event. There is no time limit or points awarded for landing.

14.3: For Event 458: RC Slope Soaring Combat

14.3.1: Objective. To recreate the excitement of aerial combat in a safe competition that will be interesting to spectators and challenging for contestants.

14.3.2: General. Unless otherwise stated, pilots of RC combat sailplanes must comply with all applicable AMA and FCC regulations.

14.3.3: Safety. Consideration of safety for spectators, contest personnel, and contestants is of the utmost importance for this event. Any conduct by a contestant deemed by the Contest Director (CD) to be hazardous in nature will be cause for immediate disqualification from the event. All aircraft flown must be safety inspected by the CD, or an individual designated by the CD, prior to competition and may be re-inspected at any time during the event. The judgment of the CD on safety matters cannot be protested. The site specifications and aircraft specifications listed are essential to the safe conduct of this event.

14.3.4: Site Specifications. The CD is responsible for selecting a site suitable for the safe conduct of the event. The site will have topography capable of sustaining non-powered model flight relative to the prevailing wind (slope lift), provide an area suitable for the safe landing and retrieval of downed aircraft and provide for the safety of any individuals or public domain in the immediate area of the flying site.

14.3.4.1: The CD will establish a flight line parallel to the crest of the slope. Pilots and helpers will stand at this flight line during the competition.

14.3.4.2: The CD will establish end lines, perpendicular to the flight line, at each lateral end of the flight area. The distance between end lines will be determined by the CD based on topography and spectator considerations.

14.3.4.3: The CD will establish a safety zone, defined as a rectangle between the end lines, the flight line, and a line parallel to the flight line a minimum of 100 feet downwind of the flight line. The only allowable people within the safety zone during competition rounds will be the pilots, their assistants and contest officials. The safety zone must be clear of spectators, vehicles, buildings and public roadways. Any aircraft flying or landing downwind of the flight line and outside the safety zone will be disqualified from the round with zero points awarded.

14.3.4.4: The CD will select a site with a suitable upwind flying area. The area upwind of the flight line, within which the landing of an aircraft may be reasonably anticipated, must have terrain allowing for the safe and expeditious retrieval of downed aircraft and must not pose

any hazard to spectators, the general public, buildings or public roadways.

14.3.5; Aircraft Specifications

14.3.5.1: With the exception of control surfaces, covering and structural reinforcements listed below, the aircraft must be constructed entirely of expanded bead, plastic foam material.

14.3.5.2: The maximum allowable wing span shall be 49 inches.

14.3.5.3: The maximum allowable flying weight shall be 35 ounces.

14.3.5.4: Wings shall have a plastic foam leading edge at least 1 ½ inches wide, measured chordwise, the entire span of the wing. The wing may be covered with film covering material, vinyl tape, fiber reinforced vinyl tape or any combination of the three. Wood, metal, solid plastic, carbon fiber, Kevlar or any resin impregnated fiber material on or in the wing leading edges are not permitted.

14.3.5.5: Wing spars of any non-metallic material are permitted; provided they do not violate the provisions of Section 5.4 (more than 1 ½ inches away from leading edge at any point along the span). Maximum total cross sectional area for spars shall not exceed ¾ sq. in. Moveable control surfaces at the wing trailing edge (ailerons) will not be considered a part of the total spar cross section.

14.3.5.6: The fuselage of a Class B, Conventional Aircraft must have a plastic foam nose section at least 1 ½ inches in length. The fuselage may have longerons of any non-metallic material provided their total cross-sectional area does not exceed ½ sq. in. area, and that the longerons do not extend into the forward 1 ½ inches of the nose. The fuselage may be covered with film covering material, vinyl tape, fiber reinforced vinyl tape or any combination of the three.

14.3.5.7: Any flight control surfaces may be constructed of wood or corrugated plastic/paper material. Metal, solid plastic, carbon fiber, Kevlar or any resin impregnated fiber construction or covering material on the control surfaces is not permitted.

14.3.5.8: Any ballast added to an aircraft must be imbedded and secured internally within the aircraft structure and may not be attached externally to the aircraft structure.

14.3.5.9: No plane shall use any form of thrust power. Engines, electric motors, compressed gas or chemical propellants are prohibited. Aircraft converted from electric power must have the motor, motor battery, propeller and any hard surface hatches removed from the aircraft prior to competition.

14.3.5.10: There shall be no limitation on the number of controls. The builder-of-the-model rule does not apply for this event.

14.3.6: Competition Classes. The CD may select from the following classes.

14.3.6.1: Class A, Flying Wings. Open to any aircraft, which does not have a horizontal stabilizer surface separate from the wing plan form (i.e. "tail-less" aircraft).

14.3.6.2: Class B, Conventional Aircraft: Open to any aircraft which uses conventional tail control surfaces, separate from the wing and attached by a fuselage structure.

14.3.6.3: Class C, Unlimited. Open to any aircraft complying with the requirements of Section 5 (i.e. combined flying of class A and B aircraft).

14.3.7: Contest Structure.

14.3.7.1: The CD will define flight groups for each round. The number of aircraft flown per group will be at the discretion of the CD based on the total number of entrants, the availability of non-conflicting radio frequencies, the desired number of rounds to be flown in the time available and the size of the slope flying area. Typically there will be 5 to 15 aircraft per group. The size of the groups flown in a round will be equalized to the greatest extent possible. After each pilot has had the opportunity to compete in at least two non-elimination rounds, the scores will be totaled, with a number of the highest scoring contestants, determined by the CD, advancing to the final round. The top scores of the final round are the winner and runner-ups of the contest.

14.3.7.2: In the case of a point tie in the final round, the total points of the qualifying rounds will be used to determine the winner of the tie. If this also results in a tie, the tied pilots will compete in a round to determine the winner (fly-off). At the discretion of the CD, additional non-scored aircraft may be allowed to participate in the fly-off to increase the likelihood of points being scored.

14.3.7.3: Launching. Aircraft must be launched by hand. Dollies, wheels, or catapults are prohibited. Every contestant is allowed the use of one helper to assist in launching the aircraft.

14.3.7.4: Round Duration. The CD will determine and announce the duration of each round. If a contestant crashes at any time during the round, an unlimited number of re-launches are allowed within the duration of the round,

provided the aircraft is down in an area which allows its safe retrieval. No repairs may be made until after the conclusion of the round.

14.3.7.5: Change of Aircraft. During a round, no change of aircraft is allowed for any reason. In between rounds, the contestant may freely choose from any aircraft available.

14.3.7.6: Inter-round Safety Inspection. The CD may re-inspect and remove any aircraft that may have been made unsafe for flight during an earlier round. The pilot of the aircraft so removed may make field repairs and resubmit the aircraft to the CD for inspection.

14.3.8: Contest Officials.

14.3.8.1: Judges. There will be one judge for each aircraft flown. Fellow pilots or helpers may act as judges. Each aircraft's judge will validate and register points gained by the aircraft and rule upon round disqualification for crossing safety lines defined in Section 4.3. The judge will report the pilot's score to contest officials at the end of the round.

14.3.8.2: Contest Director. The CD will be responsible for all duties listed in other sections and will provide for tallying the scores of each aircraft in the competition.

14.3.9: Scoring.

14.3.9.1: Points are scored by causing an opponent's plane to strike the ground and cease flight after a mid-air contact. No matter who initiates the engagement, the plane that remains flying after such an event, and demonstrates flight control by performing a verification maneuver, shall gain one point.

14.3.9.2: Mid-air contact that does not result in a single aircraft striking the ground and ceasing to continue flight, and in the remaining aircraft being able to demonstrate flight control, will net no score for either pilot.

14.3.9.3: Points shall be verified in one of two ways by the victorious pilot of an engagement:

14.3.9.3.1: Execute a single, 360-degree roll and return to fully controlled straight and normal flight.

14.3.9.3.2: Execute a single 360-degree loop and return to fully controlled straight and normal flight.

14.3.9.4: The point verification maneuver must be performed prior to re-engaging in combat with another aircraft.

14.3.9.5: If an aircraft crashes as a result of attempting to complete the point verification maneuver, no points will be awarded for the engagement. The judge for a given aircraft will determine if the verification maneuver was successfully completed and that straight and normal flight control was demonstrated.

14.3.9.6: Multiple collisions. If an aircraft collides with multiple aircraft in the pursuit of a single engagement, points will only be awarded for the last such collision unless a point verification maneuver was successfully performed prior to each individual collision.

14.3.9.7: At the discretion of the CD one bonus point will be awarded if a pilot can fly an entire round without the aircraft coming to rest on the ground.

15. Aerobatics for RC Gliders:

15.1: Task A1—Aerobatics.

15.1.1: Concept. The objective is to perform precise aerobatic maneuvers to be scored by a selected number of judges in the same manner as the AMA Pattern contests for powered model aircraft.

15.1.2: Rules. The aerobatic RC glider program has been separated from other Tasks inasmuch as such contests can be conducted either at thermal or slope soaring contest locations. It is feasible to schedule aerobatics at thermal contests in conjunction with duration, or even precision. The slope is fertile ground for the aerobatic glider. From the AMA rule book, these maneuvers were chosen as those which an RC glider could perform:

a. Loop (1)
b. Roll (1)
c. Cuban Eight
d. Wingover
e. Inverted Flight
f. Immelmann Turn
g. Tail Slide
h. Horizontal Eight
i. Two-turn Spin
j. Other

Judges scoring this type of competition should be briefed with the AMA rulebook section depicting the flight path required for these maneuvers, and then shown several demonstration flights prior to the contest. Scoring sheets should be provided. If more than four (4) judges are used, the high and the low scores should be thrown out and the three (3) scores added together for each flight. Three (3) rounds should be flown with the highest aggregate score to determine the winner. No landing score is given due to the possibility of landing in rough or mountainous terrain.

16. Racing for RC Gliders:

16.1: Task R1—Closed Course.

16.1.1: Rules for Entry.

16.1.1.1: Each club may enter a team of up to six (6) members, all of whom must be current AMA members.

16.1.1.2: All fliers must be members of the club entered. Support personnel need not be club members.

16.1.1.3: Each team will provide a timer which will be assigned to a different team.

16.1.1.4: Each club may enter any number of sailplanes. However, each must be flown on the same assigned frequency.

16.1.1.5: There is no restriction on the type or number of chase ground vehicles, however space must be provided for one timer.

16.1.1.6: All sailplanes shall fall within FAI limitations with regard to size and weight.

16.1.1.7: There is no restriction on the number of controls or sensors.

16.1.1.8: All ballast must be carried internally and cannot be jettisoned except for water ballast.

16.1.1.9: All sailplanes shall bear the AMA number of the primary fliers, and National Flag.

16.1.2: Description of Course.

16.1.2.1: The course shall have a total perimeter in excess of 15 statute miles as measured on a normal automobile odometer.

16.1.2.2: The organizers are encouraged to lay out larger courses, depending on local topography and contestant skill. For possible future national record purposes, the following courses should be recognized: 25, 50, 100 miles.

16.1.2.3: The course must include a minimum of three (3) straight legs, which form an enclosed area. A common start/finish line shall be located at a convenient point on the perimeter.

16.1.3: Flight Rules.

16.1.3.1: Object is to fly the course nonstop. Fastest time wins.

16.1.3.2: If all flights are less than course length then the longest distance flown wins. In the case of ties the shortest time will determine the winner.

16.1.3.3: Each team will provide a twelve volt launch system for all launches. Maximum line length is 600 meters with the turnaround located 300 meters from the winch.

16.1.3.4: Each club will provide its own line retrieval.

16.1.3.5: Initial launching sequence will be determined via a random drawing. Subsequent launches shall be at club's discretion.

16.1.3.6: Re-launches will not be permitted on the course.

16.1.3.7: Time for each attempt will begin only when the sailplane crosses the start line. The ground vehicles must cross the start/finish line in advance of the aircraft.

16.1.3.8: A club may change planes with no restrictions other than the initial assigned frequency must be used.

16.1.3.9: Any number of attempts will be allowed. The best flight will be used in the final scoring.

16.1.3.10: Once on the course, the chase vehicle(s) must travel the designated route except for possible off course retrievals.

16.1.3.11: The sailplane need not fly directly over the prescribed route; however, all turns must be flown outside the course perimeter.

16.1.3.12: In the event of on course landings (less than full course length) the point of landing shall determine the distance flown.

16.1.3.13: If the sailplane is destroyed in flight or goes out of sight the timer will log its point of furthest progress up to that point.

16.1.3.14: Each team may establish its own relief routine during the race.

16.1.4: Organizer Responsibility.

16.1.4.1: Provide sufficient personnel to ensure that all rules of section 16.1.3. are observed.

16.1.4.2: Control all frequencies assigned to the competing teams to ensure that each team has a clear frequency, and that all AMA and FCC regulations are observed.

16.1.4.3: Provide a map describing the course outline and pertinent features at least 24 hours prior to the start of the event.

NATIONAL RC SAILPLANE RECORDS

As AMA National Records are not considered competition, the only rules that directly pertain to RC Soaring records are within this section of the Competition Regulations.

Procedure. Obtain from AMAHQ an application for RC Soaring Sanction. This, when completed and signed by an AMA Contest Director, is returned to AMA HQ with the sanction fee.

Classifications. For each of the AMA age classifications (Junior, Senior, and Open) and each of the Sailplane classifications (A—Hand Launch, B— Two (2) Meter, C—Standard and D—Unlimited) the following records shall be recognized:

1. Duration

2. Thermal Duration
3. Declared Distance
4. Open Distance
5. Closed Course Distance
6. Altitude
7. Speed
8. Goal and Return Distance

General Rules. All record claims must be made by US citizens who are members of the Academy of Model Aeronautics. An AMA sanction is required for all attempts. Multiple records for any one class with a single flight may be attempted provided sanctions are obtained for each task. A minimum of two (2) officials must witness the record attempt. Both officials must be AMA members and at least one (1) of the two (2) must be a current AMA Contest Director. Initial record claims will have no starting minimums. After initial records are established all subsequent records must simply better the existing records. All previous records shall stand as established prior to January 1, 1992. Records can only apply to Sailplane Classes A, B, C, and D. Multiple entries are not permitted; i.e. Class A cannot be flown for Class B, C or D record attempts (see section 10.1.c.). Team effort is permitted for all record attempts. However, only one (1) pilot will be permitted. The model must meet the following specifications: Maximum surface area (combined wing and horizontal stab projected areas)—150 decimeters2 (2325 square inches), maximum flying weight—5.00 kilograms (11 pounds, 0.368 ounces), surface loading— from 12 to 75 grams/decimeters (3.95 to 24.57 ounces/square feet). The model may be hand-launched or launched by means of a line (hand tow, hi-start or winch) with a maximum launch length of 300 meters (984.25 feet). Hi-start can be any combination of elastic and line, but stretched length for launching cannot exceed 300 meters (984.25 feet). The towline must have a pennant or parachute of suitable size and color to enable officials to determine when towline release occurs. No other type or form of launch is permitted. The launch equipment must be ground based. Once released from launch no other propulsion of the model is permitted.

Special Rules.

Duration. Timing of the flight starts at release of the model from the launch device and stops when the model touches the ground (or solid ground based object) and stops or disappears from the timekeeper's sight for more than five (5) minutes. The point of landing must be within 300 meters (984.25 feet) of the launch point. The time is taken by two* (2) timekeepers. The registered times must be within one (1) percent of each other with the lowest reading considered official. In Thermal Duration, the flight shall be sustained on thermal lift only, over essentially flat ground, and at no time shall the model fly in slope lift. The loss of height between the starting and landing points, for both Duration and Thermal Duration cannot exceed 100 meters (328 feet, 1 inch).

Declared, Open and Goal + Return Distance. The distance claimed shall be that on a straight line between launch and landing points as measured on a map with a scale of at least 1:100,000 for distance up to 50 kilometers (31 miles, 364 feet, 3.84 inches) and 1:200,000 over 50 kilometers. The point of landing is where the model first touches the ground.

For Declared Distance, the pilot must indicate in writing before the flight the place where the model will land. The actual point of landing must be within a radius of 300 meter (984.25 feet) of the point indicated. The record for this task shall be the longest straight line distance between the starting and finishing locations and shall be irrespective of where those locations are. For Open Distance no declared goal is required. For goal and return distance, the pilot must specify in writing before the flight the turnpoint to be used as a goal and the place where the model will land. The record for this task shall be the sum of the longest straight line distance between the launch and goal positions summed together with the longest straight line distance between the goal and landing positions. For goal and return, the point of landing must be within 300 meters (984.25 feet) of the launch point.

Closed Course Distance. The distance claimed shall be that resulting from adding the completed passes over a straight base of 100 meters (328 feet, 1 inch) during a continuous flight. Distance traveled outside this course is not considered and fractions of a circuit will not be included.

Altitude. The maximum height of the model above the ground at the launch point may be measured by barograph carried either in the model or in an aircraft following but never rising above the model, or by theodolites from the ground. An official observer must be present in

the aircraft following the model. A full description of the methods and equipment used must be submitted with the claim containing sufficient proof of accuracy of the equipment and competence of the operators. The landing point of the model must be within 300 meters (984.25 feet) of the launch point.

Speed. The Speed measurement course shall be along a straight line of 150 meters (492 feet). The start–finish line (Base A) shall be an imaginary vertical plane perpendicular to the course. A similar imaginary vertical plane (Base B) shall exist at the opposite end of the course. Suitable sighting devices defining the imaginary vertical planes at both Base A and B shall be erected. The imaginary line directly between the sighting devices is defined as the course center line. For safety purposes, all flying will be done only on one side of the course center line. The side to be used shall be the side furthest from any spectator areas. Any crossing of the course center line during the flight shall void the flight. During a continuous flight and after released from the launch line, the model must first make at least one (1) 180 degree turn before entering the course by crossing Base A while flying in the direction of Base B. It must cross Base B, turn around, cross Base A, turn around again, cross Base B, turn around again and then leave the course by again crossing Base A. Officials acting as flagmen shall observe and signal the model's crossing of Base A and Base B each time it occurs. The pilot must remain at Base A and may stand beneath the sighting device. Official recorded time starts when the model enters the course and stops when it leaves the course. All timing must be done by electronic timing devices capable of direct readings to at least 1/10 second. The average of the two (2) readings closest to each other will be used as the official recorded time. A full description of the methods and equipment used must be submitted with the record claim containing sufficient proof of accuracy of the course, sighting and timing equipment, and competence of the operators. Any launch will be permitted that meets current FAI rules, except that the maximum launch line length shall be limited to the AMA maximum of 300 meters (984 feet). The flier will have two (2) minutes to complete the task from release from the launch line and ending with the completion of the speed run. A fourth timer will ensure that this time is not exceeded.